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2015 – STROLLING DOWN MEMORY LANE

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The relentless pace

As I write this, I'm looking out at a beautiful, clear sky and I can hear birds chirping away in the nearby tree. Other than the sound of my fingers on the keyboard and the birdsong, I'm in total peace. But it feels very much like being in the eye of the cyclone – that period of relative calm just after the first relentless pummelling and before round two begins.

2015 has been a very busy year. When it started, I had no idea I'd end up sitting in the hot seat at *Macworld Australia*, the Apple Watch was just a rumour and we had no idea Apple was going to reinvigorate almost every product it sells

Personally, I've covered over 200,000 kilometres in air travel this year – a record for me – and have spent over a quarter of the year travelling. It's little wonder I'm looking forward to a few days off over the summer.

While putting together this month's look back over the year, starting on page 16, I was amazed at how much has happened in the Apple universe. But what's really amazing is, I think I could have written at least a couple more pages. I ran out of space on the page before I could discuss what Apple's doing with its efforts to become a more environmentally responsible company. I didn't get a chance to look closely at the new headquarters, nicknamed the 'spaceship', that's under construction or reflect on what Tim Cook's leadership has done for Apple.

Looking ahead, I'm really pleased that long-time Apple commentator Garry Barker will be contributing a column to our magazine each month. Having written more than two million words about Apple over the last 20 years, Garry is very likely the most experienced Apple writer in the world.

Next year promises to be a great year for Apple fans. I'm excited by the potential of the new Apple TV and what it will bring to my lounge room. And I wonder if the iPad Pro will bridge the gap between iPad and MacBook. I'm sure 2016 won't be boring.

Here's to a fruitful 2016 for you, loyal readers.

STAFF PICKS

What app do you most want to see on the new Apple TV?

ANTHONY CARUANA

I want all the local catch-up TV and video on demand services. Then I can watch what I want, when I want, ad-free.

MADELEINE SWAIN

Golden Days Radio – and if you're judging me, you've simply never experienced its magnificence.

JAMUNA RAJ

Tetris! Although after I play I have this urge to rearrange my wardrobe.

MONIQUE BLAIR

Bejeweled. I am hooked and need it on the big screen!

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(niche:) DIGITAL

HAVE YOUR SAY

LETTER OF THE MONTH

DISK UTILITY RAIDED

I was very interested to read the article 'How to Configure a Cheap Secure RAID Backup System' in the October issue of *Macworld Australia*.

I tried to follow the instructions provided, but fell at the first hurdle; there was no RAID tab to be found anywhere. It is possible that the facility was removed now that I am running OS 10.11 and the magazine is still back one iteration, but if that is so you may like to inform your readers how to do the RAID trick under the new operating system.

Dr James B Potter

Indeed, you are correct James. We were caught out by Apple making some significant changes to Disk Utility in El Capitan.

Fortunately, it hasn't completely removed the capability to create a RAID – just the ability to do it with Disk Utility. You can create a RAID using the Terminal. We've put a short tutorial on doing this in this month's Secrets section.

APPLE PRICE HIKES

On 25 September I priced a new 27in 5K setup I wish to buy. The overall price as per attached screen capture was $5138. I was going to buy today and strangely could not locate my saved bag on the Apple store site. So I selected it all again and, wow, the price has gone up in only a few weeks to $5778! They have ramped up some of the specs for the optional components, but I was not expecting it to creep over 5.5K for my 5K :(

Maybe you might like to ask Apple why there's a price hike of $640 or 12.5 percent?

Hey, maybe their prices fluctuate all the time due to exchange rates, and maybe few people ever take screen captures and wait a few weeks between thinking and committing to buy. Who knows? I asked the online Apple guy in chat and he said it was an overall price adjustment on release of the new 21in model.

Anyway, great magazine, I read it each month.
Steve

I noticed a considerable price increase for MacBook Pros on Apple Store Australia, but can't find any announcements regarding this?

I was looking to buy a custom order 15in and checked the price last month, went to place my order this month and now it's several hundred dollars more for a product that was released 2013… Even with currency rate fluctuations, why increase such an outdated product by so much? There's not a chance I'm ordering now.
Clair Sullivan

I suspect many prices are going to rise because of the falling dollar. We recently posted a story on the increases in the App Store and the iPhone 6s was dearer than its predecessor.

Just doing a little analysis – the base price for the top end iMac 27in is US$2299, which is about $3174. Add the GST and you get to $3491.

The local price is $3599, which is a little higher than I'd expect.

Historically, Apple hasn't changed product prices until it does a product refresh. So this hike is, I think, in response to the recent fall in our currency's value and Apple taking a longer-term hedging position against further changes.

If you're not wedded to getting the latest model, you may find a discounted model on Apple's refurbished items store at www.apple.com/au/shop/browse/home/specialdeals.

IANAL (I AM NOT A LAWYER)

I wanted to buy a single copy of *Country Style* from Newsstand for $5.99.

Then I received the following message: iTunes Terms and Conditions have changed. Before you proceed, read and accept the new Terms and Conditions.

The terms and conditions arrived: 58 pages, 21,504 words, 111,805 letters, 2529 lines, 339 paragraphs.

Can you recommend an expert terms and conditions lawyer?

All I wanted to do was buy a single copy of *Country Style*.

If I go to my newsagent and pay $6, he will sell me a copy of *Country Style* without 58 pages of terms and conditions. This transaction will take only 30 seconds without the stress of buying through Apple.
Peter Strand

I have to agree, Peter. The terms and conditions attached to many services have now reached the point of ridiculousness. In contrast, I recently signed a business contract that was just two pages. It was in plain English and covered everything the two parties needed.

Interestingly, even a cursory look through the iTunes Terms and Conditions reveals that not everything is actually a term or condition – some of it refers to technical information such as the use of HDCP (high-bandwidth digital content protection) connections when using HDMI (high-definition multimedia interface). And there's some guff about indemnity and waivers.

In short, it's a pretty ridiculous document to expect a layperson simply buying a magazine, movie or song to read.

We're with you, Peter.

THE MAGIC OF THE MAC

I realise this was probably better prepared for the August 2014 issue, but perhaps it's one for the Letters to the Editor segment also. I refer to J Stewart's editorial in the aforementioned issue.

I have very fond memories of the Mac and *Australian Macworld* (*AMW*, now *Macworld Australia*). Twenty years ago, during the warm textures of the mid 90s, I was eagerly reading the back catalogue of *AMW* magazines in the senior school library – amazed and inspired by the style of the magazine, the creative philosophy of Apple products and the difference all this made me feel about technology, far unlike the IBM-compatible world. I'd always been a little different anyway.

Of course, acquiring a Mac all of my own was never going to be easy. I have expensive tastes – even back then – and of course I was after the

Quadra 840AV decked out completely. I didn't know why I needed that power; it just seemed right. Eventually, I settled on a family funded 7220/200 though the all-in-one Mac at a friend's place got steady visits!

AMW and in turn the Mac presented a really positive, cool view of the world and what was possible. Whether it was the interesting articles and analyses, the tips and tricks or the columns of Steven Noble versus Osmund Lind Iversen (Iversen's final, entertaining three-page rant before leaving *AMW* is still worth the read), everything felt better about the world (if only they'd use Macs). Of course, these days (and almost 20 years into a technology consulting career myself) we all know the practical side of technology and the occasional perils and pitfalls (far more than occasional on the Wintel side), but we deal with it and society inches or leaps forward nonetheless.

Today, Apple continues to lead the way (sometimes imperfectly), and never would I – or Osmund even – have imagined Apple's growth across the decades. There may still be a lot of work to do in whatever capacity we work and live, but at least with a Mac on my desk, I know that I've got a great chance of achieving a vision, whatever that is.

Thanks AMW.
Randall C Hughson

HAVE YOUR SAY

BROADBAND BLUES

I have no doubt that you receive thousands of emails relating to Telstra, but this is a case where Telstra called me offering a free connection to cable internet, as the cable ran past my house. The events that followed left me wondering how Telstra can stay in business – and I'm a shareholder…

I received a cold call from a Telstra representative in late August, offering a free cable internet connection, a free gateway modem and a $69 per month bundle, including existing telephone and 50GB of data.

On 10 September I received a form letter confirming the details and the plan.

On Tuesday 13 October, I received an email informing me that my hardware had been sent and would take between five and 10 days to arrive.

On Wednesday 14, I came home to a note advising me that I had missed my connection appointment and would have to reschedule. Except that I didn't have an appointment. At least the hardware had been delivered.

I rang and rescheduled the appointment for Friday 16 October at 8am and received a confirmation number. When nobody turned up, I rang and was assured that I did not have an appointment. When I mentioned the email about hardware delivery, I was also assured that I would not be receiving any hardware by mail, as mine was a professional installation. Apparently the shiny, new Telstra Gateway sitting on my table was a mirage.

I rescheduled the connection appointment for Monday 19 October. When the technician arrived, he declared the house "unconnectable" because he was not allowed to climb as high as the existing telephone connection point, which is above a bullnose verandah. He also couldn't connect the cable to the fascia under the guttering on the other side of the house, which is the same height as the cable on the power pole in the street, because, although his ladder would reach, there were no tie-off points on the roof, and the ladder would be standing in a garden bed.

How many houses, new or old, have specially fitted tie-off points along the guttering?

The technician rang his supervisor for advice. His only suggestion was to have the cable come in underground, which was a whole lot more expensive. When I told him that I had been offered free connection, he said, "Not on this house", and left after 20 minutes.

To top off my second day home from work with nothing to show for it, I received an email from Telstra welcoming me to my new $79.95 plan (rather than the $69.00 plan that had been confirmed by letter).

This month's prize to the *Macworld Australia* reader who has submitted what we think is the most interesting letter is a WeMo Switch – a home automation device that lets you switch off electronics from your Android and iOS smart device via the free WeMo app. The WeMo switch retails for $69.95

The WeMo Switch lets you turn electronic devices on or off from anywhere. It uses your existing home Wi-Fi network to provide wireless control of TVs, lamps, stereos, heaters, fans and more.

www.belkin.com.au

I rang a supervisor, who was very good, I must say, but the final word was that if I organised to have a contractor do the work that Telstra technicians are not allowed to do, then they would still connect me for free, except that I would have to pay the contractor.

I fully understand the need for OH&S laws, but this is a farcical situation. As I explained to the supervisor, if a tree falls over my existing telephone cable, I will be without a telephone because Telstra technicians are not allowed to climb to the existing connection point to repair it.

The only reason that I even considered having Telstra cable was because Telstra rang me out of the blue. In the end, I was largely left in the same position as I had been before the call, except that I had also had to endure a week of incompetence and two days of missed work. If first impressions are everything, then Telstra's score is currently nothing.
Craig Roberts

WHERE'S IMAGE CAPTURE?

I have just updated my OS to El Capitan and had the usual problems with Apple Mail and a couple of third-party programs.

My greatest disappointment was to find that Apple Image Capture no longer connects with my Epson Perfection V700 Photo Scanner, which I use on a daily basis.

I have managed to locate an Epson application and have things up and running again; however, the Epson program lacks the versatility of Image Capture.

Is Image Capture destined to go the way of that other great Apple Program Aperture?
John Horton

It looks to us that you're not the only one John.

Have you updated the drivers since upgrading to El Capitan? The Epson website shows a driver was released in September for use of that scanner with El Capitan.

Good luck.

HOT STUFF
A selection of Apple, Mac and iOS news from Macworld.com.au

GOOGLE MAKES ITS AI SOFTWARE OPEN SOURCE

Google's TensorFlow is the machine learning tool it developed to automate many of the repetitive actions we take for granted when using a Google service. For example, it's the technology behind facial recognition – the ability to see pictures of two different faces and recognise that they are the same person.

TensorFlow replaces Google's existing machine learning tool. It's faster, smarter and more flexible than its old system, making it more adaptable as new products and research come to light.

According to Google, TensorFlow will be a port of everything from speech recognition to search and even its recently released Smart Reply function in Gmail that automatically responds to your email for you.

While many companies assiduously guard such technology, Google sees great potential in TensorFlow and is making the tool open source so it can be used by "everyone from academic researchers, to engineers, to hobbyists – [who can] exchange ideas much more quickly, through working code rather than just research papers".

DRIVERLESS CARS – COMING SOON TO A ROAD NEAR YOU?

The local automotive industry, as we know it, may be spiralling towards a slow death but our ongoing need for cars isn't waning. In early November, the Australian Road Research Board (ARRB), gave Australians a glimpse of modern motoring as driverless cars hit Australian roads for the very first time in Adelaide.

ARRB group managing director, Gerard Waldron, says, "This demonstration marks the first of a series of research and field trials nationally to identify and assess what needs to be done to make driverless cars appropriate in an Australian context, with particular emphasis on those human factors that are often encountered behind the wheel."

Reportedly the first trial of its type in the southern hemisphere, the demonstration was conducted in a driverless Volvo XC90 on a closed, controlled section of Adelaide's Southern Expressway.

"We brought together a range of industry, government and academic partners from around the world and closer to home, and particularly appreciate the efforts and involvement of the South Australian Government and Volvo to make this happen," says Waldron.

The vehicles travelled at speeds of up to 70 kilometres per hour and the addition of a 'pace car' (standard vehicle) to simulate traffic showed how the driverless vehicle technology interacts with other road users and adapts to changing conditions.

Last month, Tesla released a software update that allows the Model S to automatically steer, change lanes and park. Given the number of Tesla charging points that are appearing – a car park in Melbourne's CBD has spaces with power outlets set aside for Tesla owners – and the rapidly improving software and sensors that make driverless vehicles possible, I'm pretty sure it won't be long until the Government will get interested and start looking at the legal frameworks.

Recent trials by Google of driverless and autonomous cars ran into, if you'll pardon the pun, a serious problem – human drivers. When a car stopped to allow a pedestrian to cross a road safely, a vehicle driven by a human slammed into the back of Google's vehicle.
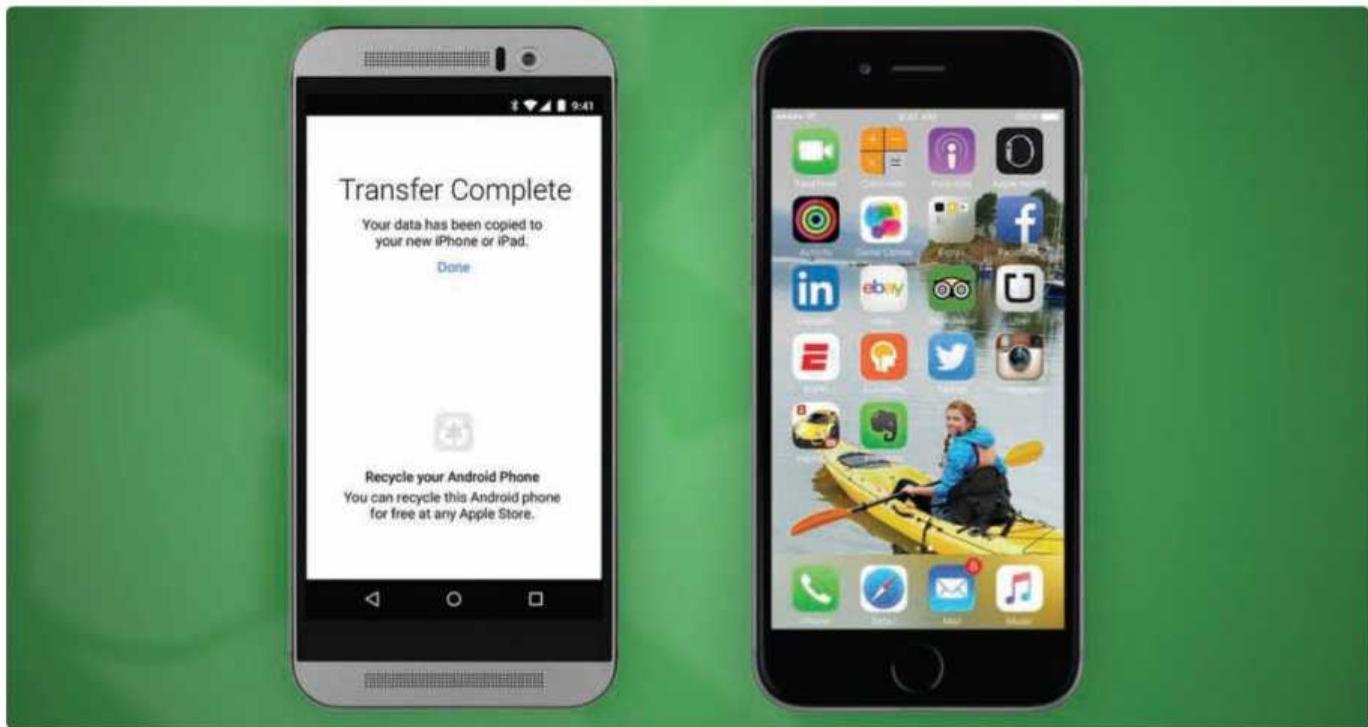
There are also some significant ethical issues to consider.

There can be situations where an accident is unavoidable. Should we trust software and sensors to make a decision about the needs of the one against the needs of the many? In other words, in a worst case scenario, whose life should an autonomous car put in danger? The driver or someone outside the car? What if there are multiple passengers in the car and parties outside at risk?

There are clearly some strong cases for autonomous vehicle activity. Parking, reversing along narrow paths and other more challenging manoeuvres can probably be executed using sensors more effectively than by humans.

But at 100 kilometres per hour on a busy highway, are you ready to trust your life to hardware and software engineers?

We don't have to decide that just yet. But by the end of this decade, it's something all drivers are going to be thinking about.

THIRTY PERCENT OF iPHONE BUYERS ARE ANDROID SWITCHERS

Apple keeps breaking records with the number of iPhones it sells each quarter, but CEO Tim Cook isn't worried about that growth slowing down. Why? Android.

Cook said during the company's fourth-quarter earnings call that 30 percent of new iPhone buyers in the quarter that ended in late September were switching from Android, which is a new record. And just two days of iPhone 6s and 6s Plus sales were included in the company's Q4 earnings, so that percentage of Android switchers may be higher in the holiday quarter that ends in late December.

"What this means is that for customers who purchased an iPhone last quarter and replaced a smartphone, 30 percent of those switched from an Android device," Cook said. "There would've been some switchers from other operating systems, but Android is the largest one by far. That

number is the largest we've ever recorded since we began measuring it three years ago. We're very proud of that number."

There are more than one billion Android users in the world, Google CEO Sundar Pichai revealed at the company's annual I/O developers conference in May. Apple is clearly targeting those users with larger phones and new features like 3D Touch and improved camera hardware and software. While Android users have a wider selection of hardware at varying price points to choose from, Apple just made it more affordable to buy an iPhone upfront with its iPhone Upgrade Program. In the US, carriers like Sprint and T-Mobile also raced to the bottom in an effort to convince people to buy iPhones from them for as low as US$1 a month.

And, of course, Apple is happy to help Android users painlessly join the iOS ecosystem with its relatively new Move to iOS app for Android, which transfers an Android phone's data to a new iPhone.

Goroka Show, PNG

One of the great things about iSnap is the insight so many of the images give us into different places around the world. That's why this month's winning image, from Jan Edwards, captured our eye.

While working in Port Moresby, Edwards had the opportunity to visit the Goroka Show.

"It was all serendipitous. I was working in Port Moresby and a colleague had one spare ticket to the Goroka Show, an annual cultural event in the Eastern Highlands of Papua New Guinea," says Edwards.

One of the things we love about iSnap is learning about the stories behind how some images are captured. In many cases, it's all about being in the right place at the right time. But for Edwards, the opportunity to shoot her winning photo came from forgetting a camera.

"I didn't have a camera with me, so I borrowed one from the office and, as luck would have it, I left it in my hotel room. I subscribe to *Macworld Australia* and have long been envious of the photos featured in iSnap. With this in mind, I went to the Goroka Show with the intention of taking the best photos that I could using my iPhone 5s."

Although Apple makes a big song and dance about the quality of the camera in the iPhone – the phrase 'deep trench isolation' will forever be etched into our memory after the release of the iPhone 6s – it's great to know that the iPhone 5s is capable of taking some great pictures.

Edwards' photo hasn't been altered in any way. What you're seeing on this page is what came from the camera.

"I have not used any filters," she says. "Indeed, I didn't even know about filters or other iPhone applications. The secret to this photo is getting in close to the subject and thinking about the light."

Although Edwards was happy with the result of her shots at the Goroka Show, she's investing some time and effort into getting even more proficient with her iPhone camera.

"I am so inspired with the capabilities of the iPhone camera, I took a half-day course and have learned a little about filters and applications for editing. I am holidaying in Italy and Spain at the moment, and I am travelling with only the camera in the iPhone 5s."

Happy holidays Jan!

STROLLING DOWN MEMORY LANE

BY ANTHONY CARUANA

Looking back over the year, I can't believe how much has happened. We've seen new products from Apple and significant updates on existing ones. The company has continued to grow and also invest in the future.

On the local front, Jonathan Stewart moved on from the editor's chair at *Macworld Australia* and the sceptre was passed on to me.

Here's the year that was!

NEW PRODUCTS

Without a doubt, Apple's 'hero' product for 2016 is the Apple Watch.

Apple took its time entering the wearables market and, unlike most of the other entrants to the market, which had a focus on fitness and well-being or notifications, Apple used its control of the hardware and software, as well as its immense manufacturing expertise to design and create a device that tried to fulfil the needs and desires of those looking for a wearable that transcends the gap between fashion accessory and useful wearable computer.

Has Apple succeeded?

So far, sales are around the six million units mark. Most companies would call that a rousing success – Apple became the largest seller of smartwatches worldwide almost as soon as the Apple Watch arrived in stores during April.

If there was any doubt about Apple considering the Apple Watch as a fashion brand, as it seeks to continue its shift from computers to consumer electronics to being everywhere, then the updates revealed in September left no doubt.

Apple's partnership with Hermès isn't the first time a tech company has joined forces with a fashion brand, but it's a sure sign Apple is making a move towards being the technology choice for the rich and famous, as well as the rest of us.

Interestingly, as the year draws to a close, Apple has done something it only rarely does – it has discounted the Apple Watch by $50 if purchased with an iPhone from selected Apple Stores. It's not a fire sale by any stretch, but it is an interesting development.

The other new product – well, significant evolution of an existing product – was the iPad Pro.

Although Apple usually leads the market in creating new technologies or making existing tools far more usable, the iPad Pro seems to be somewhat reactionary in my view.

We'd expect the iPad Pro, given its price and form factor, to be popular among the travelling workers. The 12.9in display is a little too large for lounging back with while watching TV and the new keyboard and stylus accessories are about making input easier.

Back in March, Apple also revealed its new MacBook. This super-thin and ultralight notebook is, quite simply, one of the best portable computers I've used. Although some may criticise the low-power processor and single port for all connectivity and power, I've used one on several overseas trips and the light weight and long battery life make it a winner.

Most interestingly, Apple pioneered two new technologies with the MacBook – a new way of building keyboards and the use of Force Touch with the trackpad.

HOW WE INTERACT WITH TECHNOLOGY

Apple has always been at the forefront when it comes to challenging the way we interact with our technology.

When the iPod was introduced, with its drastically simplified interface when compared to other music players of the time, many critics panned Apple. After all, being able to manage playlists on the device was seen as a key feature until Apple challenged that way of thinking.

It did the same when it introduced natural scrolling with its mice back in 2011, changing the way we carried out the simple exercise of scrolling up and down a screen.

Force Touch and its close cousin 3D Touch will give app developers new ways to create applications for users.

Thus far I've not seen anything particularly impressive with Force Touch. Sure, being able to get a quick context menu from an app on the new iPhone or Quick Look a document on a Mac is handy, but that's only slightly more interesting than right-clicking a mouse.

I'm looking forward to the creators of graphics and video-editing applications, for example, using Force Touch and 3D Touch to make it easier to work with layers on complex images and movies. The use of haptic feedback, through Apple's Taptic Engine, could be used to indicate which layer the editor is working on or reaching.

Force Touch and 3D Touch are still very new and it will take some time for it to become pervasive. But I have a feeling it will, over time, become a natural part of how we interact with our computers.

KEEPING IN TUNE

When Apple launched the iTunes Store in 2003, it was a pioneer. Before the iTunes Store, the only way to get music onto an iPod was by ripping CDs or downloading music from services such as Napster – both illegal.

The situation was such that former Microsoft CEO Steve Ballmer once quipped that the most popular music format on the iPod was "stolen"!

Over the least couple of years, however, Apple has fallen behind with streaming services such as Rdio, Pandora and Spotify getting the jump on it. These services have either low-cost or ad-supported options

that give listeners access to millions of tracks.

Apple's response was the long-awaited launch of Apple Music in August 2015. With curated stations, through Apple Music Radio and the ability for artists to interact with listeners through Apple Music Connect, the service was launched with a three-month free trial.

There was some controversy when Taylor Swift complained that artists weren't going to be paid during the trial period, but Apple's Eddy Cue smoothed that wrinkle out the only way things seem to happen these days – over Twitter.

And just to remind us the iPod is not gone, a few weeks after the launch of Apple Music, Apple updated the iPod Touch as well. By that time, we had passed the first anniversary of the demise of the iPod Classic – the device that started the music revolution.

THE ONLY THING THAT'S CHANGED IS EVERYTHING

Each year, Apple attempts to whip up a frenzy of excitement with a new iPhone. Those who follow iPhone release cycles will understand the so-called 'tick-tock' release cycle. Every other year there's a

'tick' release. This is the one where Apple does something completely new and revises the form factor. The most recent 'tick' releases have been the iPhone 4, 5 and 6.

During the alternate 'tock' release years, we typically see a relatively minor tweak. The design stays the same, but we see a processor update, some new features that work hand-in-hand with the most recent iOS upgrade and maybe one or two other cool, but relatively minor, updates.

The 'tock' releases bear the same version number as the 'tick' releases, but get an 's' appended to their name.

The iPhone 6s looks like a 'tock' release. Outwardly, there's very little difference between the iPhone 6 and iPhone 6s, but under the covers there are huge differences.

3D Touch was the showstopper new feature. The ability to use pressure-sensitive gestures has the potential to completely change the way we use mobile devices. But we're still waiting for someone to come up with a novel application of 3D Touch.

The faster and more accurate Touch ID sensor will further reduce the friction for Apple Pay when it arrives. Although American Express cards will work with Wallet and Apple Pay this year, it won't be until 2016 that the other credit card companies and local banks come on board.

I'm usually pretty sceptical about the value of an upgrade during a 'tock' year. But the iPhone 6s is a significantly different iPhone to last year's model – even if it doesn't look like it from the outside.

APPLE KEEPS ON GROWING

A look through Apple's financial records for this year reveals a company that is continuing to do extremely well in a highly competitive and volatile market.

Apple's share price continues to maintain a steady trajectory. If we solely listened to market analysts we'd be tempted to think Apple's price was rising and plummeting as if on a rollercoaster. And it's true there has been some fluctuation.

Whenever Apple makes any sort of announcement, the share price moves. It reminds me of a scene from the last movie in Christopher Nolan's *Dark Knight* trilogy, when two stockbrokers discuss the impact on Wayne Enterprises' stock price when Bruce Wayne returns to the public eye after a seven-year absence. One of the traders asks the other if Wayne's return will make a positive or negative impact on the prices.

His colleague replies that any change will cause the stock price to change. When pushed, he says that his decision on whether the price will rise or fall will be based on a coin toss!

That's what following the daily fluctuations of Apple's share price feels like.

Over the course of the year Apple's stock price, at the time of writing, was trading at a low of US$103.12 and a high of US$131.94. However, for most of the year, it sat in the narrower US$120 to US$130 range.

At the start of the year, when Apple's price was near its peak, Apple was worth more than Switzerland! From that US$700 billion valuation, things have settled to around US$675 billion, although many experts expect to see Apple reach a valuation of US$1 trillion in the coming years.

Although iPhone sales continued to record massive numbers in 2015, iPad sales flagged. The main reason, I think, is the way iPhones and iPads are purchased. For most people, the iPhone is paid for through instalments as part of a mobile phone contract, whereas the iPad is an all-out capital purchase.

With phone contracts typically lasting two years, Apple has created a recurring income stream based on upgrades. The iPad, on the other hand, is an item people tend to hold on to for much longer periods. Apple seems to have acknowledged this with iOS 9 giving many older iPads a new lease on life.

Despite the continuing contraction of the PC market, Apple managed to record increased sales on the Mac. To some degree, this was buoyed by the release of the new MacBook in March, but there's little doubt in my mind that the fabled 'halo effect' continues to drive sales for Apple.

In particular, Apple's growth in China will drive strong results for the coming years. Revenue from China in the final quarter of 2015 was recorded at just over US$12.5 billion. The same quarter in 2014 recoded US$6.3 billion.

One interesting trend reported during the last earnings call for 2015 was the number of iPhone buyers who are switching from Android. Apple CEO Tim Cook says that about 30 percent of new iPhone buyers are switching from Android to iOS.

This is a telling number, although I wonder how much of that is weighted towards the Chinese market, where cheap Android handsets are widely available. I've tried a few cheap Android tablets and smartphones in my time. Many are barely usable and are probably doing Android some serious brand damage.

OPERATING SYSTEMS

Almost every day, I encounter naysayers who say Apple is all about form over function or style over substance. Some say the folks who buy Apple gear are more interested in how things look than how they work.

The reality is, Apple's 'secret sauce' has never been just the hardware. And it's never been just the software. Apple's secret sauce is that it controls the entire user experience from how the buttons feel, to the sound they make, to how the software works and the feedback you receive when you complete some action on your iPhone, Apple Watch or Mac.

Both iOS and OS X have been around long enough that they are no longer in need of major changes. When you look back at OS X over the last decade, each successive version has been about refinement. Although there have been new features added – Spotlight and Quick Look are indispensable for me – many of the changes have been subtle and designed to reduce the friction of everyday tasks.

El Capitan continued Apple's strategy of relatively minor annual updates rather than the old way of monolithic changes every two or three years. Clearly, it's an effective approach as many other software vendors, such as Microsoft and Adobe, are adopting similar strategies. Microsoft has taken Apple's approach a step further saying there will be no more versions of Windows. Windows 10 is the last numbered version with all further updates being added incrementally as they are ready for release.
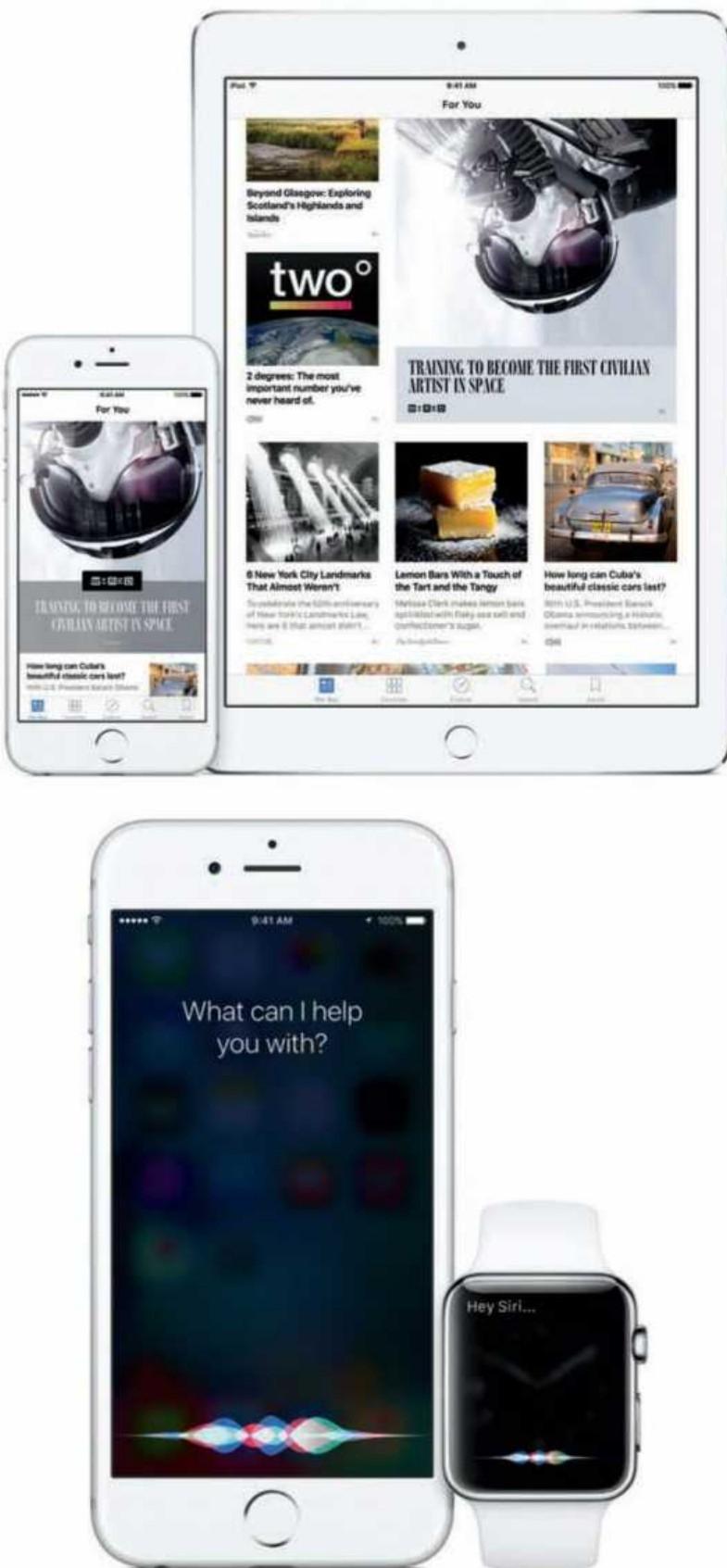
After using El Capitan through the beta process and since its official release, I'm a fan. There have been some significant issues reported by users. In particular, I've read of some serious issues with Mail, but I haven't experienced those, having upgraded two Macs and installed another from scratch.

The refinements made to Mission Control are subtle and designed to make this productivity boost more useful, particularly for users who aren't accustomed to working with multiple desktops. The new Split Screen capability is a great way to use large, high-definition displays such as the Retina Displays that are standard issue on most of the desktop and portable Mac range.

iOS 9 was a very interesting release. Back in 2014, Professor Sendhil Mullainathan from the Economics faculty at Harvard and a group of his PhD students carried out some research. They found a strong correlation between iOS releases and people complaining that their old iPhone feels slower after the upgrade.

Although there's no suggestion of coincidence and causality, Apple must be paying more attention to the grumblings of its customers. One of the big selling points around iOS 9 – if it's indeed possible to have a selling point for a free upgrade – is that it will make older devices run faster than iOS 8.

Anecdotally, this seems to be the case. So, in addition to some new apps and features, iOS 9 may have added a year or two to the useful life of your iPhone or iPad.

This is important. With iPad sales faltering, it's clear people are hanging on to older devices a little longer. A software update that keeps customers happy is a good way to ensure that when the repeat business comes, Apple will reap the benefit.

ANOTHER NEW OS – KEEPING US ENTERTAINED

Apple has long called the Apple TV a hobby, but the most recent Apple TV – officially numbered version four, but the fifth version when you throw in the revision made to version three – reflects almost nine years of product development.

From a hardware point of view, the new Apple TV doesn't look like much but, like many things coming from Cupertino, it's not just the hardware you need to look at.

The real magic of the new Apple TV comes from Apple's newest operating system, tvOS.

tvOS brings apps to your lounge room. And while that may not seem like a huge deal – do you really want 1000 fart apps on the TV? – it will open up a potential bonanza. For example, there's already a Plex app available, so you can access and stream non-iTunes media to your Apple TV.

Although content providers such as Netflix have already had 'apps' on older Apple TVs, recent content deals – such as Optus securing the rights to English Premier League football, as well as AFL and NRL access through Telstra – point to a world where the Apple TV could shut out free-to-air television for many of us.

2016 will be a very interesting year for the new Apple TV and tvOS.

WHAT ABOUT 2016?

Trying to predict what Apple will do in the future is almost impossible. If I look at what's transpired in 2015 and apply the 'tick-tock' release cycle theory, this has been a 'tick' year.

There's been an entire new product line with the Apple Watch, significant new product variants with the MacBook, iPad Pro and Apple TV 4, and two new operating systems with tvOS and watchOS. Most of the existing product line has been given a refresh and even the 'tock' update to the iPhone was more substantial than expected.

That makes me think 2016 should be a little quieter. But I get the feeling Apple is just gearing up.

Of course, we'll see updates to OS X and iOS – most likely announced during the worldwide developers' conference (WWDC) in June 2016, released to the public in beta a few weeks later and in general release by spring. I expect watchOS and tvOS to receive updates at that time, but, given they're still quite new and relatively immature, I wouldn't be surprised to see significant updates around February 2016.

The iPad Air 2 was spared an update this year, so a shift to the faster and more energy efficient A9 processor is due. I expect that to happen in March 2016.

The iPhone 7 should hit the shelves during the spring as well, with another new form factor expected. My tip is the range will be expanded to include a 4in model to complement the existing 4.7in

and 5.5in displays of the iPhone 6s and iPhone 6s Plus. Many people I know would like all the new features offered by the latest iPhones, but find the form factor too large. They're either hanging on to their iPhone 5 or contemplating replacing them with the same handset.

The Apple Watch is a curious product. Although Apple has been into fashion and lifestyle for some time, the Apple Watch is a massive investment in that arena. Typically, Apple settles into an annual release cycle for most of its products. But with the Apple Watch starting at $499 and still not having a real use-case for most people, it's hard to see Apple releasing a new model without disenfranchising owners for the first generation product.

Certainly, the hardware needs two significant updates in my view – an integrated GPS and waterproofing. With those, I could be tempted to stop using my current sport watch. It would also tip the price and functionality balance back in Apple's favour.

Given the criticisms made of the smartwatch market, which often focus on the Apple Watch, I expect a new Apple Watch to be released during the second half of 2016, probably at about the same time as the iPhone 7.

MAC GEMS NEW SOFTWARE FROM THE MAC APP STORE

STICKYBRAIN 1.0
PRODUCTIVITY
Chronos
$30

TOP PICK

The virtual equivalent of Post-it notes, Stickies, have a storied history on the Mac. More than a decade ago, this utility became something of an afterthought for Apple, which evicted the cute little squares from the Finder beginning with OS X Tiger, where they settled peacefully into retirement as Dashboard widgets.

Perhaps sensing Mac owners had bored of colourful desktop notes, developer Chronos soon abandoned its own third-party take on the concept. But apparently you can't keep a good sticky down, because StickyBrain has been resurrected for a new generation.

The contemporary StickyBrain starts completely from scratch as an entirely new application, rebuilt from the ground up using Apple's new Swift programming language. The result is a lean and fast note manager that makes it easy to find whatever you're looking for and organise information using hierarchical folders.

Chronos likens StickyBrain to a "really big drawer" where users can deposit scraps of information, including screenshots, photos and text files imported from Microsoft Word, TextEdit, RTF and HTML files with basic formatting intact. If you've managed to hang on to your old Apple Stickies over the years, StickyBrain can import those as well, freeing them from Dashboard.

StickyBrain retains the colour schemes that made Stickies popular in the first place. Note backgrounds can be assigned 10 different colours, or kept plain white. There's no support for custom colours, and I found a bug where the default note colour set in Preferences refused to stick (pun intended) until I selected it again on the actual note.

StickyBrain follows the familiar three-panel approach used by Apple's built-in Notes, with a list of notes in the centre and a viewer at right, but here the left panel displays All, Unfiled and Trash views, as well as custom folders created by the user; subfolders can also be added for better organisation.

Although StickyBrain notes can't actually be attached to the desktop like Stickies could, they're not strictly confined to the viewer, either. As long as the application is open, notes can exist in their own windows, where they can be viewed or edited.

StickyBrain also allows other applications to be attached to notes. For example, a list of products you intend to buy from Amazon or another online destination can be configured to automatically hover above the web browser as a reminder on your next virtual shopping trip. It's a unique feature I haven't seen before.

Unfortunately, Chronos brought StickyBrain out of retirement on the heels of Apple introducing enhancements to its free, built-in Notes with OS X El Capitan, including the ability to create checklists and add photos, videos, web URLs or map locations directly from other apps. That makes it tough to justify spending $30.99 on a less-capable third-party solution.

Worse yet, StickyBrain lacks support for syncing to iCloud and popular cloud services like Dropbox, meaning users who abandon Notes would have no way to view or edit their library from an iOS device. It's a curious omission considering the previous version included sync with Palm and iPod devices, a rather forward-thinking concept in the pre-iPhone era.

StickyBrain is a slick Mac note manager with several niceties, but the lack of mobile sync and the looming shadow of improvements coming to OS X El Capitan's built-in Notes make this a cautious recommendation for now.

– BY J R BOOKWALTER

WORLD VIEW
WEATHER
Saxby Brown
$7.99

World View is a living model of the Earth with a dynamic sun-shadow, clouds and seasons. Move the mouse over the world to get the current time and click to learn more about each country. Five-day weather forecasts can be displayed or added to the map and you can search for countries, major cities or your own locations.

GIF KEYBOARD
UTILITIES
Riffsy Inc
FREE

Animated GIFs have become a fun and whimsical essential for online communication. GIF Keyboard makes it easy to insert animated GIFs to iMessage and collect GIFs by dragging and dropping them onto the Menu Bar. Riffsy has a library with millions of GIFs so you're never stuck without a perfect rejoinder.

REASSEMBLY
GAMES
MP Digital
$22.99

Who doesn't like building their own rockets and blowing stuff up? *Reassembly* lets you design a ship, thrust into adventure, destroy opponents by using your projectile and beam weapons, missiles, rockets and torpedoes, and deployable drones and, through your creativity, survive the missions as you'll have made a ship with redundant systems – at least that's the theory.

SIMPLEMIND FREE
EDUCATION
ModelMaker Tools
FREE

Mind-mapping is a well-established technique for planning and capturing information. The easy-to-use app lets you easily drag and drop elements of your map, so you can organise on the go, as well as use different colours and styles to highlight specific items. There's also an iOS version so you can work across platforms.

YOUMINDS COMPOSER
PRODUCTIVITY
YouMinds
FREE FOR COMMUNITY/PERSONAL USE, $200

YouMinds Composer is the versatile software for mind mapping, diagramming, org charts, presentation, knowledge and project management/timelines. It lets you choose from a great variety of different representations and designs for your content, while there is no need to retype what you have already created. The application can also create presentations from simple notes and mind maps. There are Mac and Windows versions, making it a useful tool for teams that aren't using the same operating system. Files can be easily shared across a network. It also lets users add comments to diagrams and maps, aiding collaboration.
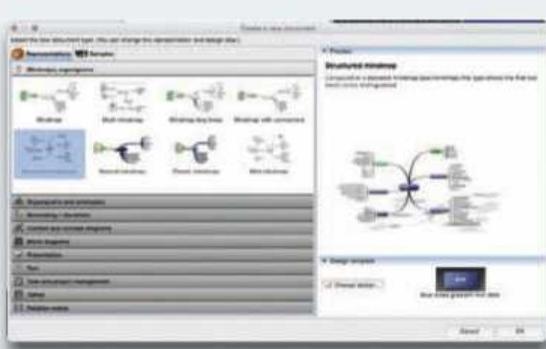
BACKUPS FOR THE CREATIVE PRO

JOE KISSELL

Backing up a Mac with a terabyte or two of internal storage poses no particular challenge.

Creative professionals, however, tend to generate massive quantities of new photo, video or audio files on a daily basis, resulting in multiple terabytes of data that may require a more elaborate backup approach.

SPLIT DECISION

My first recommendation for creative pros is to think of your backups as two separate operations: one for your large media files (which may be on external storage anyway), and one for everything else. You can tell Time Machine to exclude a folder or volume that stores your media files by opening *System Preferences > Time Machine*, clicking Options, dragging the item to the list, and clicking Save; most other backup software offers a similar capability. By doing this, you'll keep your conventional backups relatively small and fast, and make it easier to give your media files special treatment.

Time Machine offers no way to back up a subset of your data to one destination and a different subset to another destination. So, for your media files, I recommend using a different backup app. There are many fine choices,

but if I had to pick just one, I'd suggest CrashPlan because it can back up to both local and cloud storage, as well as to other computers you own. And it lets you define multiple, independent backup sets, each with its own source and destination.

RUN THE NUMBERS

Your next step is to figure out just how much data you'll need to back up, so that you can select an appropriate storage device. Again, I suggest making this a different device from the one that holds your day-to-day versioned backups (such as those created by Time Machine) or bootable clones (such as those made by Carbon Copy Cloner), because that will make the process cleaner and give you more flexibility if you later need to add storage.

Start by noting how much data your media folder(s) or volume(s) currently occupy (which you can find by selecting the folder or volume in the Finder, choosing *File > Get Info*, and looking at the Used line).

Now estimate how much new data you generate on a typical day. One way to do this is to create a smart folder.

In the Finder, choose *File > New Smart Folder*. Make sure This Mac is selected.

Click the + (plus) button on the right, next to the Save button. From the first pop-up menu, choose Created Date; from the second, choose Yesterday (assuming yesterday was a typical day).

Click + (plus) again. Then choose Kind from the first pop-up menu in the new row

and Other from the second; enter –folder into the field (meaning 'show me just files, not folders').

Press Command-A to select everything added yesterday, and then Command-Option-I to display the total size of that data.

Click Save to save your smart folder so you can check it again later.

If you want to back up every file you have now plus all those you add over, say, the next year, take your daily average, multiply it by the number of days you normally work per year, and add the amount of space your existing media files occupy. Multiply the result by 1.5 (or more!) to give yourself room for additional file versions and breathing space. If that number is bewilderingly large, you can reduce the backup space required by allowing your backup software to delete older versions of your files.

For example, if you work primarily in video, you'll have your original footage, plus project files from your editing software and perhaps dozens or hundreds of intermediate versions of each video before the final cut. You should always back up the original footage – it's easier to redo an edit than to reshoot. But you may want to remove older versions of project files from your backups in order to reduce your storage needs. (For example, in CrashPlan, go to *Settings > Backup* and click the Configure button next to Frequency and Versions to specify how long CrashPlan should save old versions and deleted files.) Similarly, original photo files and raw audio tracks should be backed up, but you need not keep backups of every single edit to a photo or audio project; in most cases, just the few most recent ones will suffice.

Even so, you may need considerable storage space. Here are your two major options, which are the same as what you're likely using for primary storage:

It's fairly easy to find high-capacity hard drives (8TB drive mechanisms are easy to find, and 10TB drives exist, but are uncommon). If your backups can fit on a single drive, that may be all you need, although a secondary backup is always a good idea.
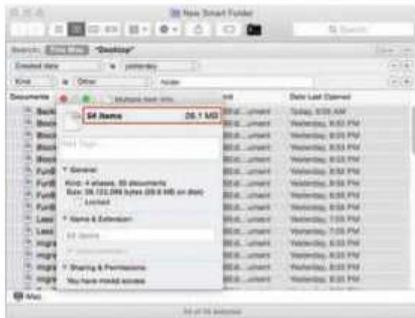
RAIDs and other NAS devices let you combine two or more drives for greater capacity, performance and/or data redundancy.

Both single- and multi-drive devices may be packaged with local interfaces (such as Thunderbolt, Thunderbolt 2, or USB 3) or network interfaces (Ethernet or Wi-Fi); a device in the latter category is called a NAS (for network-attached storage). A NAS makes it easier to share storage among multiple computers, whereas local interfaces (especially Thunderbolt) offer much faster performance.

I should mention that a RAID is not, by itself, the same thing as a backup – not even if you use RAID 1, which mirrors the same data onto two drives (or RAID 5, which requires three or more drives). A RAID can protect you against hardware failure, but not accidental deletion, software bugs, theft and other problems. So if you use a RAID as primary storage, you should almost certainly back it up to another RAID.

WHAT ABOUT THE CLOUD?

Perhaps you're thinking that cloud backups – using, say, Amazon Cloud Drive or CrashPlan, which offer unlimited storage for a fixed annual fee – could be a less-expensive alternative. Maybe, but it depends on how much data you need to back up per day and whether your broadband connection can handle it.

People who have or can obtain gigabit-or-faster fibre broadband are generally in good shape; most cable and DSL customers may find their service too limited to back up terabytes per month.

You can test your upload speed using a service such as Speedtest (speedtest.net). Then, to get a very rough estimate of how much data you can upload per day, take your upload speed in megabits per second (which is usually much lower than your download speed) and multiply it by 10.8. That will give you the approximate number of gigabytes you can upload in a day. (For example, if your upload speed is 15Mbps, you can theoretically upload 15 x 10.8 = 162GB per day, although real-world results will almost invariably be worse.) If that's considerably more than the amount of new data you're creating each day – and if you aren't constrained by a monthly data cap – then by all means, consider cloud backups. (But I still recommend at least one local backup, because it's far faster to restore data locally than it is to download it from the cloud.)

FINAL THOUGHTS

Backing up large quantities of data is always going to require more money, time and inconvenience than you'd prefer. Restoring that data may be more challenging too, in that raw photos, videos and audio files don't always have descriptive names, yet you may have to rely on filenames when retrieving data from your backups. And backing up while on location may mean lugging around a large, clunky device. But all of this hassle pales in comparison to the agony of losing the only copy of an irreplaceable media file on which a customer or client is depending.

iOS SECURITY UNDER THREAT

Security vendor FireEye has found "210 enterprises with XcodeGhost-infected applications running inside their networks, generating more than 28,000 attempts to connect to the XcodeGhost Command and Control (CnC) servers". In addition, the vendor has also detected a vulnerability targeting ads that may be injected into iOS apps.

XCODEGHOST S

XcodeGhost was first seen when app developers in China used compromised versions of Xcode to create apps. They did this as access to the official versions published by Apple was difficult given China's tight restrictions on internet use. Consequently, Chinese developers used pirated versions of the free developer tools that were distributed within China. Unfortunately, malware was injected into the pirated versions of Xcode.

When XcodeGhost first appeared, Apple was quick to remove infected apps from the App Store.

FireEye's analysis reveals some interesting insights:

- There's no single specific target industry as many different industries are represented in the 201 companies they found had infected apps.
- There are still some folks out there running iOS 6 with 70 percent of infected devices running iOS 8 or older.
- Older, infected versions of WeChat and Music 163 are the main source of

infection, as users have not updated the apps to the most recent 'clean' versions that are available in the App Store.

The research also found a new variant of XcodeGhost, which FireEye has dubbed XcodeGhost S, has been created to specifically target iOS 9 devices. This is because iOS 9 uses a new security measure that blocked the ability for infected apps to access their CNC servers. The updated malware uses a workaround for this.

WHAT CAN YOU DO?

For the majority of iOS users, XcodeGhost and XcodeGhost S should not be a significant issue. But with infected versions of Xcode in the wild, it may be possible for more infected apps to sneak under Apple's guard and make it into the App Store.

Keeping your iOS devices up-to-date with the latest software updates from Apple and the App Store is a strong first step and avoid side-loading apps (tricky unless you've jail-broken your device).

IBACKDOOR

I've long been concerned about the potential for infected advertisements, that are injected into websites, games and apps via third parties, to provide a vehicle for malware distributors. This isn't a new technique – ninemsn was hit back in 2010 and it wasn't the first or last victim.

FireEye says the mobiSage library is being exploited to inject malicious code that can be used to:

- capture audio and screenshots
- monitor and upload device location
- read/delete/create/modify files in the app's data container

- read/write/reset the app's keychain (e.g. app password storage)
- post encrypted data to remote servers
- open URL schemes to identify and launch other apps installed on the device, and
- 'side-load' non-App Store apps by prompting the user to click an 'Install' button.

FireEye's mobile researchers claim to have discovered potentially backdoored versions of the ad library embedded in thousands of iOS apps originally published in the Apple App Store. They have observed more than 900 attempts to contact an adSage server capable of delivering JavaScript code to control the backdoors.

FireEye notified Apple of the complete list of affected apps and technical details on 21 October 2015.

The good news is FireEye has not observed the ad server deliver any malicious commands intended to trigger the most sensitive capabilities, such as recording audio or stealing sensitive data; affected apps periodically contact the server to check for new JavaScript code.

Over recent months, I've noticed some increasingly annoying behaviour in some ads. Some weeks ago, ads appearing in a game I regularly play began asking for location information. Thankfully, iOS's security controls intercepted the request and I was able to reject the request, but it points to a broader issue.

Advertising is what pays for many of our 'free' apps. The reality is nothing is free. We pay for our apps in three ways – either with money, by exposure to advertising or by giving up some of our personal data. This new exploit uses our desire for a free app and willingness to pay for it through exposure to advertising to steal personal data.

I'm not certain, yet, of the fallout of iBackDoor. The difficulty for Apple is that it's not apps that are specifically infected, so removing apps from the App Store may not be the answer. The challenge will be to block potentially malicious ads or ad networks. And it will also need to patch the vulnerable code library.

APPLE AND IBM ARE VERY FRIENDLY... NOW

In 2002, Apple fired its corporate PR manager for prematurely releasing a Gartner study that found the usage and total cost of ownership around 10,000 PCs and Macs at Melbourne University was about 36 percent less expensive to maintain than PC-based networks.

For those involved in system support, that's probably not a big surprise.

Fast-forward to today and we're hearing a similar story. However, this time we're hearing it from IBM – Apple's one-time mortal enemy (at least if you believe everything from the excellent movie *The Pirates of Silicon Valley*).

IBM is planning to deploy up to 200,000 per year according to IBM's CIO Jeff Smith.

During Apple's most recent earnings call, Luca Maestri, SVP and chief financial officer, said, "There are currently over 30,000 Macs deployed within the company with 1900 more being added each week. IBM tells us that each Mac is saving $270 compared to a traditional PC."

Apple and IBM are working together, with Apple trying to make the switch from the consumer market into the enterprise. With the iPhone and iPad already invading the boardroom and C-suite, Apple is now setting its sights on the rest of the office.

Apple and IBM have been working on bringing IBM's enterprise applications to iOS recently with some apps even having Apple Watch versions.

AMEX TO BRING APPLE PAY TO AUSTRALIA

American Express has announced that Apple Pay will be available for card members in Australia and Canada this year with Spain, Singapore and Hong Kong to follow in 2016.

With Apple Pay, card members in these countries will have the ability to add their eligible consumer, small business and corporate American Express cards and pay with iPhone or Apple Watch in stores where contactless payments and American Express are accepted. Card members will also be able to use their iPhone or iPad to pay within participating merchant apps.

When paying with Apple Pay, card members will continue to receive the same protection and customer service from American Express.

"With our global reach, we are able to bring Apple Pay to card members quickly in these important countries," says Tony Prentice, vice president, mobile products and payments, American Express. "We believe it is critical to be on the forefront of seamless and innovative payment solutions for our card members and we are pleased to be able to deliver on that with Apple Pay."

"Our customers love their experience with Apple Pay and we want to bring it to as many of our users worldwide as possible," says Jennifer Bailey, vice president of Apple Pay. "With a global issuer like American Express, we are thrilled to seamlessly bring our easy, secure and private way to pay to more customers internationally."

Just as in other countries that accept Apple Pay, card members who use an eligible American Express card with Apple Pay will get these features:

- real-time notifications and details for purchases, and
- seamless connection to the Amex Mobile app for enhanced account monitoring, servicing and access to available rewards and offers.
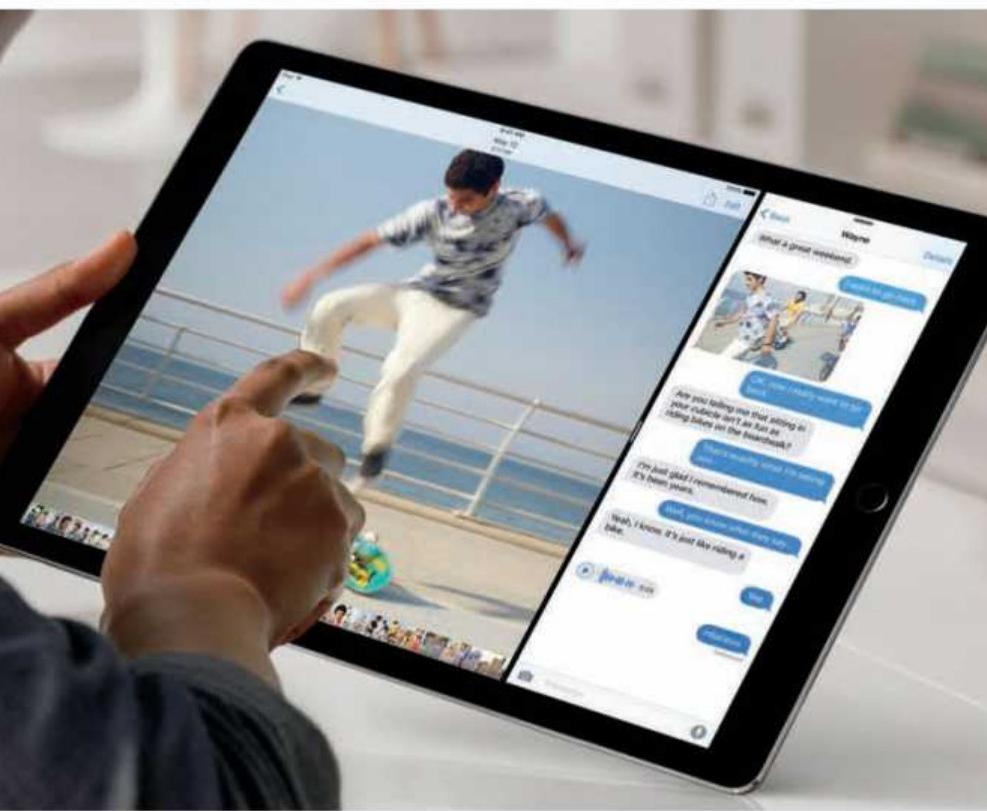
THE MAC IS HERE TO STAY, SAYS COOK

Apple CEO Tim Cook caused a minor kerfuffle recently while promoting the iPad Pro in an interview with a UK newspaper when he asked, "Why would you buy a PC anymore? No really, why would you buy one?"

The question baffled Mac users, and seemed to suggest that Apple may, one day, phase out the Mac – or combine it with the iPad to make a hybrid device similar to Microsoft's new Surface Book. Cook clarified the meaning behind his question in a new interview with the *Irish Independent*, telling the newspaper that Macs and PCs are not the same. Snark on PCs aside, Cook said he understands that some people need desktops and notebooks while, for others, a powerful tablet like the iPad Pro will suffice.

"We feel strongly that customers are not really looking for a converged Mac and iPad," Cook said. "Because what that would wind up doing, or what we're worried would happen, is that neither experience would be as good as the customer wants. So we want to make

the best tablet in the world and the best Mac in the world. And putting those two together would not achieve either. You'd begin to compromise in different ways."

Yeah, that's definitely a dig at Microsoft.

The differences between Mac and iPad chips are dwindling, as Apple's A-series line gets more and more powerful. But that doesn't mean an iPad will eventually replace a Mac, even if Cook now uses a Pro as his everyday work machine.

"What we've tried to do is to recognise that people use both iOS and Mac devices," Cook told the *Independent*. "So we've taken certain features and made them more seamless across the devices. So with things like Handoff, we just made it really simple to work on one of our products and pick it up and work on the next product."

Apple's core business is hardware, and Macs remain a key piece of that business. Mac sales were up three percent year-over-year in 2015 as the rest of the PC market continues to decline. While Apple wants to boost iPad sales by launching the Pro as an alternative to smaller notebooks, Cook just made it clear that the Mac isn't going anywhere.

APPLE LETTING A CERTIFICATE DIE ISN'T A SECURITY ISSUE, JUST AN EMBARRASSMENT

When you hear the phrase 'digital certificate expired', you probably immediately assume something terrible happened, your security has in some way been impaired, and you need to take action. Fortunately and unfortunately, that's not what happened with Apple recently.

Apple failed to renew a critical digital certificate related to the Mac App Store, and some apps couldn't be launched or failed as a result of OS X being unable to validate them.

Digital certificates combine cryptographic information with metadata that can include explicit details, such as the date on which it becomes valid and the date after which it should no longer be accepted. The certificate takes the plainly readable text, including expiration date, and encrypts it in such a way that only a party possessing the private half of a public-private encryption key pair – a fundamental component of many kinds of internet validation and session security protocols – could have done so.

In such a case, this allows OS X to be sure that the software running is a version downloaded from the Mac App Store, instead of something else. With an expired certificate, the software can't determine that. Instead, it reports the app has been damaged and suggests a user delete and re-download it – which wouldn't solve the problem.

This is embarrassing, because Apple should have a master tracker and multiple people responsible for ensuring the

renewal of all of its digital certificates, domain names and the like – critical pieces of integrity, security and navigational infrastructure that are directly tied in with the trust of an organisation.

Trust on the internet typically descends from a root of trust. While many aspects of the internet are decentralised and lack central control, others are deeply hierarchical, although there's no top-down enforcement to choose one or another.

Take DNS (domain naming system), the protocol that's used to turn human-readable domain names into Internet Protocol (IP) addresses that are used by system software to direct traffic to the right destination. DNS is decentralised, in that no central authority registers all domain names to IP address mappings. Instead, there's a hierarchy from the root (literally . or a dot) through top-level domains (.com, .nz, .aero) to second-level domains (macworld.com.au, co.uk and the like) and so on. At each level, delegation takes place.

But DNS has central points of failure: all internet-enabled devices point to the root to figure out how to descend delegations and find the right domain-to-IP conversion. The root is a number of machines distributed around the world.

It's possible – and was tried years ago – to establish alternative DNS roots and domain-naming systems, but those almost entirely failed to take hold because the current domain system works just well enough.

It's not secure, however. While efforts have been made over many years to build cryptographic elements into DNS, and some progress has been made, there's no way to be sure on any given local area network that a legitimate domain lookup has occurred. (This is called DNS poisoning when such hacks occur.) There's no good reason a digital certificate should fail unless an attack or compromise is underway.

Digital certificates, on the other hand, rely on extensive cross-checks using certificate authorities (CAs), information about which is built into operating systems and separately into some browsers, like Mozilla's Firefox. CAs counter-sign digital certificates, which allows any device receiving a certificate to validate that the plain-text portion hasn't been tampered with.

When a certificate fails – whether through an accidental expiration or due to tampering – it's a reasonable precaution for software to act as if the sky is falling, because there's no good reason it should fail unless an attack or compromise is underway.

I bring up DNS above, because one of the most common attacks to hijack secure traffic involves suborning a certificate authority (something that has happened with too much frequency) and then poisoning DNS, sometimes at a national level, as in Iran. This lets a fraudulent, but legitimately verifiable certificate be assigned with an illegitimate DNS lookup. It redirects a user's device securely – to the wrong place.

But you can approach this from a variety of angles. Apple wasn't prepared

THERE'S NO GOOD REASON A DIGITAL CERTIFICATE SHOULD FAIL UNLESS AN ATTACK OR COMPROMISE IS UNDERWAY.

for a certificate failure of this kind, building OS X to assume the software was at fault, rather than Apple. And, to be fair, this is a sort of epochal event: it should happen never or, failing that, so rarely as to be implausible.

And yet because Apple's infrastructure is seemingly so brittle, not only did it happen, it inconvenienced an unknown number of Mac App Store software purchasers, while offloading the frustration and customer-service load to developers.

Apple has reissued its Mac App Store certificate with an expiration date of 2035. But this isn't a good idea, either. Short-term expirations of a year or two prevent future unexpected and unintended exploitation of integrity guarantees present in digital certificates. Even though Apple controls the use of this certificate, it implies a lack of trust in its ability to remember as a corporate entity to renew it again.

Having caused hundreds of thousands to millions of dollars in lost productivity and staff time to users and developers alike, this may cause more developers to rethink their relationship with the Mac App Store. Its primary advantage is access to iCloud as a means of syncing or storing data, like preferences, instead of requiring the use of Dropbox or developers building their own sync systems.

Some developers have discontinued MAS versions over recent years. This may cause some to reconsider the App Store advantage once again.

FileMaker
An Apple Subsidiary

PROUDLY SUPPORTING MAC IN BUSINESS

The iPad Pro is a pilot fish for Apple's ARM Laptop

When you come to a fork in the road, take it, Yogi Berra is alleged to have said. Microsoft chose this bon mot to guide its Windows 8 strategy, converging mobile and desktop. And now the new iPad Pro sits beside the 12in MacBook to suggest Apple is approaching that very same fork.

I was confused during Apple's introduction of the iPad Pro, which has a display so large it can nearly fit two iPad Air 2s side by side. The Pro's focus on drawing seems highly specialised. And despite some other productivity features, the iPad Pro doesn't seem to have a natural audience. Yes, it has amazing specs, but can a bigger, pencil and keyboard compatible iPad really be the answer to Apple's stalled tablet sales?

But don't get too caught up on what the iPad Pro is now, because it's also a pilot fish: Apple is testing the waters for future tablet directions, all while paving the way for an ARM-based laptop running OS X.

ARMED AND READY

Ever since Apple began designing its A-series chips, we've heard rumours that the company is working on a laptop powered by an ARM chip. Certainly, Apple tests all kinds of ideas in locked-down labs. The iPad was built years before it shipped, and the iPhone came out of its development, not the other way around. Similarly, Apple had a group building OS X on Intel chips long before the PowerPC processor line was dropped.

So we can be sure that OS X is running on prototype ARM-based hardware somewhere at One or Two Infinite Loop. While Intel ticks away at producing faster and more efficient processors, Apple focuses on controlling its own destiny. It's been this way since the return of Steve Jobs, and slowly reducing the need for Intel processors would be a reasonable path.

In his keynote, Phil Schiller discussed iPad performance in a way Apple has previously avoided. The new tablet has a 64-bit chip that offers "desktop-class performance". The iPad Pro's CPU is 22 times faster than the original iPad's chip, and twice as fast as the iPad Air 2's processor. The new tablet also has twice as much memory – we know it's 4GB thanks to an accidental disclosure by Adobe. Graphics performance is also 360 times faster than the original iPad.

Apple even noted the Pro has better performance than 80 percent of the laptops on the market. That 20 percent is key, though. Apple's laptop sales are just above 10 percent of unit shipments worldwide, and Apple's lowest-performing model is faster than most other laptops. Thus Apple doesn't sell any laptops slower than the iPad Pro. The iPad Pro hasn't yet been benchmarked against notebook computers, but its performance is likely competitive with an entry-level MacBook Air.

Why praise the Pro in this context if it isn't a test to see whether the market is waiting for something that combines attributes of a laptop and a tablet

without the drawbacks of either? Even the best tablets suffer from system constraints, while laptops with capacitive touchscreens are awkward to use.

Microsoft went down this path, and tried to marry the two. The desktop OS would benefit from touch gesture support, making laptops more flexible, the case went. Meanwhile, phones and tablets could run the same software as on the desktop – except they couldn't, really. The promise of a single OS powering all types of devices is only just beginning to emerge in the Windows universe.

Microsoft's current mission is to make the best native apps for every OS iteration on which its software can run. Apple made a similar case, explaining how software optimised for the iPad Pro keyboard experience could be as good as, or better than, a comparable laptop version. That's irony, but also good for Apple's future.

A reasonable person could argue the iPad Pro is a niche product that will have a high margin at its price point, and will be embraced by illustrators, artists, architects and others who already integrate an iPad Air 2 into their workflow. Indeed, a bigger iPad with a pressure and direction-sensitive stylus and keyboard just makes everything that's right about the iPad even better for this highly specialised user base.

But millions of people buying the iPad Pro? That's hard to see, unless I'm misjudging the market.

THE MACINTOSH WAY – WAY, WAY INTO THE FUTURE

In June, *Wall Street Journal* columnist Christopher Mims suggested Apple drop the Mac. He argued that computers were distracting Apple from its core business, and noted that laptops and desktops account for only 10 percent of Apple's revenue. I argued at the time that Apple would be abandoning a loyal audience, including video, design, animation and illustration professionals – and amateurs, too. iOS devices don't have the performance

for high-end computing, and iOS developers can't even build their apps on iPads.

The chips in Apple's Mac line-up will outperform mobile-class processors for the foreseeable future, because mobile devices can't tap into enough power or dissipate enough heat to use the best performing CPUs (central processing units) and GPUs (graphics processing units).

Rather than eschew the fork and take both roads at once, as Microsoft did, I see Apple's convergence meeting at a paper-thin margin. On one side, trailing off on a curve from cheapest/smallest/slowest to richest/ biggest are iPhones and iPads. On the other side, you'll see an array from the Mac Pro down to the MacBook Air.

From a use-case perspective, the interstice is very thin between an ARM-based OS X laptop with a MacBook-style keyboard and iPad Pro specs, and an ARM-based iOS tablet with MacBook capabilities, but a touchscreen and only an option – not a requirement – for a keyboard. The two devices may even look quite similar, but a buyer will pick one over the other for distinct reasons: the way

they input and interact with data, and the range of software they need to use on a daily basis.

We could speculate that Apple is aiming toward hybrid convergence: a single device with the next generation of A-series chip that either runs both iOS and OS X as a dual-boot, or is an OS X laptop with all the touch advantages of an iOS system. But Apple doesn't make these sorts of compromises. It tries to avoid producing equipment that's neither fish nor fowl – not fully in one world or another.

The iPad Pro lets Apple test the parameters of how far it can push its current technology toward providing laptop performance without making an underperforming OS X-based ARM system. It's an experiment; the end goal isn't to follow Microsoft down a path already shown to diverge in use cases and users' needs.

Apple doesn't have to converge entirely. It can have two distinct, parallel and separately useful general computer operating systems with their own strengths, meeting just in the middle without ever touching. Apple could take the path less travelled and it would make all the difference.

GADGET GUIDE

Valet Charge Dock for Apple Watch and iPhone

My bedside table is a mess of charging cables so I charge towards any opportunity to declutter that space. The Belkin Valet Charge Dock for Apple Watch and iPhone uses a single power cable to charge your iPhone and Apple Watch.

Unlike many of the other Apple Watch docks I've seen, the Valet doesn't rely on using the magnetic charging cable Apple supplies with its high-tech watch. With a single power cable, which comes with several international adapters, the Valet can charge an Apple Watch and iOS device simultaneously.

A small dial at the back of the Valet adjusts the height of the Lightning connector for charging the iPhone. This is quite useful as it means I was able to charge my iPhone easily, even when it was ensconced in a ruggedised case.

My one criticism: with watchOS 2, Apple introduced 'nightstand mode'. When the Apple Watch is connected to its charging cable and laid on its side, the display becomes a small clock. The Valet holds the Apple Watch vertically and there's no easy way to place it so you can use nightstand mode.

At almost $190, the Valet is a very expensive bedside accessory. But if you value a clutter-free bedside table, it's an elegant option.

Belkin / $189.95 / www.belkin.com/au

– BY ANTHONY CARUANA

OtterBox Symmetry

Our iPhones may be among the most advanced pieces of technology ever known, but they are still subject to the rough and tumble of life. While ruggedised cases aren't new, many are too bulky or look like they were designed for the army and not the office.

OtterBox's Symmetry case offers solid drop protection without all the bulk. Unlike many ruggedised cases, the Symmetry doesn't try to protect the iPhone from water and dust contamination. Its focus is purely on the most common form of iPhone damage – being dropped.

The case is made from synthetic rubber and polycarbonate, so that there's a combination of both impact and shock protection. As the front of the case wraps slightly around the front of the iPhone, even a drop directly on the front of the phone is unlikely to result in damage.

Although the Symmetry does add some bulk to the iPhone 6s, it isn't excessive, so you can still slip your iPhone into a pocket. As the Symmetry isn't aiming to protect the iPhone from water or other contaminants, all of the buttons are easily accessed and there are no annoying flaps or covers to content with.

For those times when you want to leave the case at home, the Symmetry can be easily removed.

The Symmetry comes in red, blue and pink with both iPhone 5 and iPhone 6 versions as well as options for a number of different Android handsets.

OtterBox
$39.95
www.otterbox.com

Bamboo Spark

Taking notes on an iPad or iPhone is a challenge. The Bamboo Spark bridges the gap between pen and paper and the electronic world. The Bamboo Spark is a smart folio with a smart ballpoint pen, and a spot for your favourite paper. You write, doodle and sketch by hand, press a button and it all syncs to your iPhone or iPad over Bluetooth.

Wacom
$250
www.wacom.com

TAIPAN

The TAIPAN is an 802.11 a/b/g/n/ac Wi-Fi modem router that uses Tri-Band Wi-Fi to distribute traffic over the three dedicated Wi-Fi networks for maximum performance. It has six high-gain antennas that use advanced AC SmartBeam technology to provide a very high level of Wi-Fi coverage and fast speeds around large homes. It has a Gigabit WAN port and four Gigabit LAN ports, as well as an integrated ADSL2+/VDSL2 modem.

D-Link
$579.95
www.dlink.com.au

Backbone iPhone 6s/6 wireless charging case and pad

The Backbone iPhone 6s/6 wireless charging case and pad lets you 'drop 'n' charge'. Once your iPhone is safely housed in the military tested shockproof wireless charging case, you simply place it on the Qi standard Backbone pad for a fast wireless charge – faster than a standard cable charge. The case comes in a number of stylish patterns and colours.

Dog and Bone Cases
$155
www.dogandbonecases.com

Varia RDU and RTL-500

Cyclists know the feeling – there's a car coming behind you, but you're not sure where it is. The Varia Rearview Bike Radar is both a tail-light, so you're more visible, and a radar device that lets you know as a car approaches from behind via the bundled radar display unit. The sensor mounts on your seat post and the display sits on your handlebars.

Garmin
$389
www.garmin.com

HOW TO BREATHE NEW LIFE INTO AN OLD MAC

CHRISTOPHER PHIN

Your Mac gets a bit slow and creaky as it gets older, and we can probably all identify with that. Unlike with our stupid, weak-willed bodies, though, we don't have to accept our Macs' slowing down and eventual obsolescence as a crashing inevitability. There is a lot you can do to breathe new life into your ageing computer to extend its useful life, and though some options cost money – albeit vastly less money than it would take to buy a new Mac – many are free.

This isn't about those wacky, cutesy projects to turn your iMac G3 into a fish tank or a Cube into a tissue dispenser, nor is it about celebrating the Zen of using an old, slow Mac that's cut off from the internet as a distraction-free writing tool, though there's nothing wrong with any of that. What follows is tried-and-tested pragmatic advice to keep your Mac happily and gainfully employed for many years to come.

UNDERSTAND ACTIVITY MONITOR

Like a doctor, you need to understand why your Mac is sluggish before blundering in with treatments. So your first diagnostic step is to launch Activity Monitor (/Applications/Utilities) and see where the pinch points are. This will show you what applications are demanding the most from your main processor (CPU). Click the %CPU column header to sort by this, and ensure you've selected All Processes from the View menu. If you don't recognise a process, Google it: it may be a background app that's run rogue.

Activity Monitor will also show you pressure on your memory (RAM). If you're trying to run many complex apps at once, your Mac may struggle. Start using your Mac as you would typically, and if the Memory Pressure graph on recent OSs isn't looking full, you don't need more RAM. On earlier systems, if

the pie chart of RAM use shows mostly green and blue, the amount of RAM you have is 'cool'. If it's mostly red and yellow, you're in hot water, and need to add more. Again, you can sort the RAM chart by Memory to see what apps are demanding RAM. Consider quitting RAM-hogs if you're not actively using them. (And don't ever bother with 'RAM cleaning' or flushing apps; OS X takes care of that for you.)

A LITTLE HOUSEKEEPING

In the early days of OS X, we regularly repaired permissions and ran apps such as Cocktail or OnyX to clear caches and keep the system trim and tidy. These days there's less need for that, but there's usually no harm.

One good idea is to run Verify Disk in Disk Utilities (/Applications/Utilities) on your main startup disk every now and then to identify problems. And watch
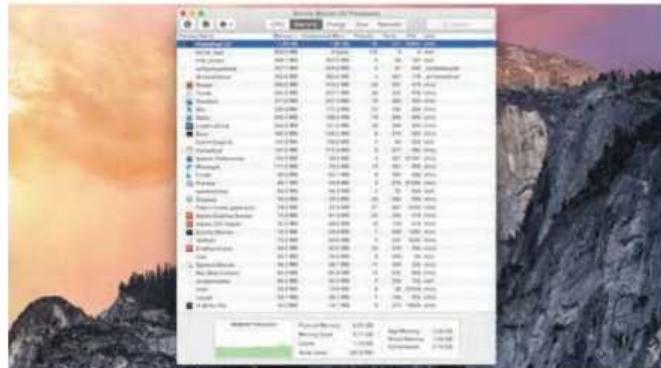
Understand activity monitor.
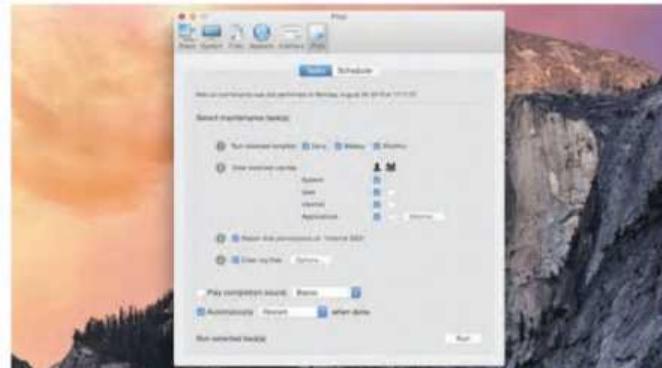
Do a little housekeeping.

the SMART status for your boot drive in Disk Utility too; it's monitoring for signs of imminent failure. Oh, and never be tempted to install MacKeeper.

DO A CLEAN INSTALL

Usually, a Mac that has slowed down further and further has just accreted apps, files and more, and one of the surest ways of restoring the pep and vigour it had out of the box is to wipe the hard disk, install a fresh OS and then, crucially, don't clone everything across using Time Machine or the like. Instead, manually copy all your documents across and reinstall your apps from the App Store or CD – omitting those you don't need.

Yes, this is usually a colossal pain, but it's often the most effective way to reinvigorate your Mac if you can set aside the time and accept the temporary disruption.

SWAP YOUR HARD DISK FOR AN SSD

Be sure you get the right form factor. For laptops and the Mac mini, this typically means a 2.5in drive – though the MacBook Air has always used more exotic and different options throughout its life – while for desktops 3.5in drives are more usual. This isn't a hard-and-fast rule, though, so do check your specs carefully. Though they exist, 3.5in SSDs are rare, but you can convert 2.5in drives to 3.5in ones with a bracket. One may even be included with your 2.5in SSD, but if not, buy one separately. Other World Computing even makes one specially for the 2009-2012 Mac Pro.

Check that you get one with the correct connector, too. Most often these days that will mean a SATA connector, but you can buy SSDs with the older IDE/PATA/ATA connector from, say, OWC. MacBook Airs use different connectors again. Note that with older Macs (definitely true for those with IDE, but also true for those with SATA I and SATA II connections), the connection to the motherboard itself will be a bottleneck, so don't waste your money by buying anything other than a basic SSD; you don't get the benefit of a high-performance model. Check your specs!

Swap your hard disk for an SSD.

Add more storage – and offload files.

Upgrade your RAM.

Any SSD, however, will have a completely revolutionary effect on a Mac that's only ever known a hard disk. It will feel much more responsive, and even if you have a small amount of RAM – because of how low-RAM machines swap information out to the storage drive when there's too much for the RAM to hold, and since SSDs are much faster especially at this kind of data transfer than a hard disk – swapping to an SSD will also help even if you don't touch the RAM.

You can just clone your old hard disk to the SSD and things will still improve, but if you can bear the hassle of combining it with a clean install, you'll get such a fast machine you won't recognise it.

SSDs will also likely extend the battery life of a laptop.

ADD MORE STORAGE – AND OFFLOAD FILES

Computers perform badly when their main storage drive is full – an oft-cited rule is to leave at least 10 percent of your drive free – so consider adding more storage to it and offloading files you don't need all the time. This may be external storage – just plug in a USB or FireWire hard disk – but don't forget about internal options. You can replace the optical drive in some laptops and Mac minis with a second internal drive, or use something like a Nifty MiniDrive (minidrive.bynifty.com) to add more flash storage to a laptop.

Many tower Macs will support at least one additional internal drive and, in this case (or also if you install a second internal drive in a laptop at the expense of your optical drive), consider using a fast SSD as your boot drive and pairing it with a high-capacity, cheap hard disk. You can even link them exactly like a Fusion Drive if you're prepared to get your hands a little dirty in Terminal.

It may not be clear what files are taking up space on your hard disk, but apps such as DaisyDisk (daisydiskapp.com) can help you identify them, and you can then either trash them or move them to an external drive. On very tight systems, running Monolingual can save you a decent chunk.

COMPUTERS PERFORM BADLY WHEN THEIR MAIN STORAGE DRIVE IS FULL – AN OFT-CITED RULE IS TO LEAVE AT LEAST 10 PERCENT OF YOUR DRIVE FREE – SO CONSIDER ADDING MORE STORAGE TO IT AND OFFLOADING FILES YOU DON'T NEED ALL THE TIME.

If you want to uninstall apps, check (including with a web search) to see if it has a proper uninstaller first. Don't fall for 'to uninstall an app on a Mac, you just have to drag it to the Trash'; search for the app's name to find support files and caches lurking in ~/Library/Application Support and elsewhere, or – with caution – use an app such as AppCleaner (freemacsoft.net/appcleaner).

UPGRADE YOUR RAM

It's hard to give absolute guidance – it depends on what you do with your Mac; check Activity Monitor as described above – but a decent rule of thumb is that 8GB RAM is pretty comfortable for most people (especially if you have an SSD), 4GB should be seen as a bare minimum, and anything under 4GB should definitely be upgraded if possible.

About This Mac will tell you how much RAM you have, and then it's easiest to check a memory configurator at, say, crucial.com to ensure you get the right thing. Fitting RAM is one of the easiest jobs you can do so, unless you're really nervous, avoid paying someone to do it for you.

Add as much RAM as you can afford, basically. With the kind of older systems we're talking about, in any case adding the maximum possible is unlikely to hit your wallet hard.

REPLACE THE BATTERY IN A LAPTOP

If your MacBook, PowerBook or iBook is only lasting minutes away from the mains, you can replace the battery. Apple no longer makes them for older machines, but there are plenty of third-party options available. It's your call, but we'd be uncomfortable trusting a no-brand bargain from eBay. Buy with a guarantee from a reputable dealer.

You may think you can't replace the battery if it's sealed in your MacBook, but this is not so. Some third-party options exist, but we'd recommend having Apple do it. Follow the links on Apple's site (apple.com/au/batteries/service-and-recycling) for costs and next steps; prices range from $199 to $309.

BOOST THE I/O

Use the fastest ports your old Mac has to connect peripherals – from slowest to fastest, it goes USB 1.1, FireWire 400, USB 2.0, FireWire 800, USB 3 and Thunderbolt – but if the ports your Mac has are too slow for you, you may be able to add faster ones. You can add PCI cards for faster USB and FireWire (or even eSATA or fibre) to most tower desktop Macs, and this is also true for MacBook Pros with ExpressCard/34 slots. Sonnet makes a wide range. Check compatibility carefully, though.

You can also add faster Wi-Fi to many Macs, either with a USB or PCI adapter or by connecting an external box to an Ethernet port. (Just make sure the Ethernet port isn't so old and slow, it will

Replace the battery in a laptop.

Boost the I/O.

Upgrade the built-in webcam – or add one.

be a bottleneck.) And remember that, say, adding 802.11ac to your Mac is pointless if you're still running an 802.11g router; replace that too.

ADD A SECOND OR THIRD DISPLAY

Lots of us find ourselves more productive when we have more screen space. If your Mac can't extend its desktop to a second screen for whatever reason, or if you've already added one external display, but want to add more, remember that (somewhat expensive) adapters exist to let you connect displays to USB ports. Make sure the one you pick is Mac-compatible.

UPGRADE THE BUILT-IN WEBCAM – OR ADD ONE

Even Apple's latest webcams are pretty awful, which is especially irritating when adding a superb external one from the likes of Logitech is a pretty cheap investment.

Tip: if a webcam lists compatibility with Windows Vista (yes, Vista) it will work with a Mac even for as far back as the old iChat AV app, since support for Vista presupposes support for UVC; in this case, you don't explicitly need to see Mac compatibility listed.

INSTALL THE LATEST OS

As soon as we suggest upgrading to the latest OS your Mac will support, we're inviting horror stories of old Macs completely grinding to a halt under the strain, and there's definitely a danger with older Macs that newer OSs will demand too much. But as well as the security and features benefits of the latest OS, in recent iterations not only have Apple's system requirements stayed broadly the same, but technologies such as App Nap and compressed memory in OS X 10.10 Yosemite can actually improve performance on weaker hardware.

If you're worried, back up your system and verify the backup, then try the latest OS your hardware supports to see if there are any problems – especially compatibility problems with software you

Add newer OS features to an older OS.

Use an old Mac as a server.

rely on – before committing. You can always restore back from your backup.

ADD NEWER OS FEATURES TO AN OLDER OS

If you don't want to go the whole hog and update your entire OS, you can get some of the features of modern versions of OS X by adding third-party software, such as AirParrot (airsquirrels.com/airparrot), Continuity Activation Tool, TotalFinder (totalfinder.binaryage.com), Alfred (alfredapp.com), Growl (growl.info) and Filedrop (filedropme.com). It's even possible – if sometimes a bit hairy – to install OSs on Macs Apple doesn't officially support.

INSTALL A MODERN BROWSER

These days much of our life is lived online, and if you're stuck with an old version of Safari or even Internet Explorer, then you'll run into frequent compatibility problems. Happily, TenFourFox (floodgap.com/software/tenfourfox) is a modern fork of Firefox created for G3, G4 and G5 Macs. And if you're rocking an even older system, check out Classilla (floodgap.com/software/classilla) for Mac OS 9 (and even 8.6).

USE AN OLD MAC AS A SERVER

If, after all that, you still think your old Mac is just too slow for day-to-day use, it can still lead a useful life as a server. Simply checking a box in System Preferences lets it share files – consider

IF, AFTER ALL THAT, YOU STILL THINK YOUR OLD MAC IS JUST TOO SLOW FOR DAY-TO-DAY USE, IT CAN STILL LEAD A USEFUL LIFE AS A SERVER.

attaching a huge external hard disk – and if you store your iTunes Library on it you can stream that to any Mac, iOS device or Apple TV just by enabling sharing.

You could go one better and install OS X Server – a separate version of the OS prior to 10.7, but a downloadable app from the App Store in 10.7 onwards – which gives you useful options such as the ability to cache software updates locally, so you're not hammering your bandwidth, and acting as a networked Time Machine target, like a Time Capsule.

CONTROL A MAC REMOTELY

No room? Tuck the old Mac server away in a closet and just control it remotely; no monitor, keyboard or mouse required. Enable Screen Sharing in its System Preferences, and connect to it from the sidebar of another Mac on your local network. Or, if it's recent enough, enable Back to My Mac so you can access it even when you're not on the same network.

You can go one better and buy Apple Remote Desktop, which gives you extra administrative and management tools.

Alternatively, connect it to the keyboard, mouse and monitor you use with your regular Mac using a KVM (keyboard, video and mouse switch), so you can easily toggle between them.

INSTALL LINUX

Even the suggestion is heresy, we know, but one of the problems with using an old operating system these days is that if you're connected to the internet you're more vulnerable to attacks. And since it's often impossible to update an old Mac to a new version of the Mac OS, you could look to the Linux community. Not only will you get a more secure computer, but you'll get access to lots of modern features, too.

Now clearly it's quite a big step, and it often needs even just a little bit more tech savvy to get started than many Mac users may be comfortable with. But, especially if you stick to popular, user-friendly versions ('distros') of Linux such as Ubuntu (ubuntu.com), it's definitely much less of a geekfest than you may assume. We've happily had Ubuntu running on a Blue & White G3 (wiki.ubuntu.com/PowerPCFAQ) with aftermarket Broadcom-based Bluetooth and Wi-Fi added without having to muck about with drivers.

Follow all this advice and there's no reason why you shouldn't eke out another three, four, five years or even more out of your Mac's useful life. If only extending our own lives were as easy!

APP GUIDE
Cool software for the iOS & Apple Watch.

INSTAPAPER
NEWS
Instapaper Holdings, Inc
iPHONE, iPAD, APPLE WATCH FREE

TOP PICK

There was a time when reading web-based content required patience while sifting through pop-ups, inline ads and poorly formatted HTML. While things have improved in recent years – especially with iOS 9's adoption of content blockers – nothing beats cosying up with a good 'read later' app that makes everything look neat, clean and, most importantly, ad-free.

When I think of 'read later', Instapaper is the first app that springs to mind. That's not just because it was one of the first such services to save web content from browsers back in early 2008, but also because Instapaper continues to offer the best experience without the unnecessary bells and whistles of its rivals.

Instapaper 7.1 refines what already makes it a favourite. For starters, Apple's new iOS 9 San Francisco font is now an option, alongside 14 other typefaces. It's a very clean, easy-to-read font, although it seems a tad small compared to my previous favourite, Lyon. (This was easily remedied by kicking the size up a notch.)
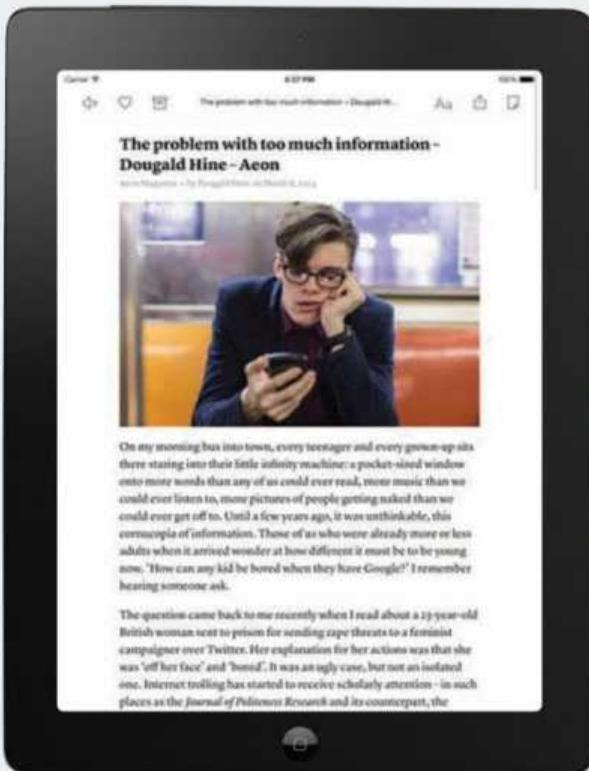
Another visual flourish is the addition of image thumbnails in article rows, which provides welcome context from the typical rows of text found in previous versions. If you prefer to see a snippet of each article, image thumbnails can be toggled off in Settings for a more traditional appearance.

A subtler enhancement is how the navigation menu now slides over the article rows instead of appearing from underneath them. While Instapaper's navigation menu was never slow, this method feels faster and can be called up from Home view by tapping the icon in the upper left corner or swiping from the left edge of the display.

For English language articles, Instapaper's text-to-speech capabilities will now automatically use the higher quality and more natural-sounding Alex voice for spoken American-English. You'll have to first install this voice from *iOS Settings > General > Accessibility > VoiceOver > Speech > Add New Language*, which requires an 869MB download.

Instapaper 7.1 includes support for the iPad Pro. The previous 7.0 update introduced multitasking support, allowing Instapaper to run alongside other compatible apps when using an iPad Air 2 or higher.

To better facilitate multi-tasking, Instapaper tweaks the appearance of grid and row cells on iPad. One downside is you'll have to choose between a grid of either text previews or image thumbnails – you can only view both while in list view.

Instapaper can also be used for saving video content for viewing at a more convenient time. iPad owners can now take full advantage of this functionality with picture-in-picture support for YouTube and Vimeo videos, although this only works best when jumping over to other apps – as soon as you attempt to browse another Instapaper article, the PiP window closes.

Instapaper 7.1 also delivers support for 3D Touch, which can be used to preview links inside articles or up to four Quick Action shortcuts from the home screen. Any of the navigation menu buttons can be configured from the app settings, which also includes very handy new Last Saved and Random options.

On the surface, Instapaper 7.1 may seem to offer only a few subtle improvements, but these changes collectively add up to an impressive update that takes full advantage of everything iOS 9 has to offer.

PIMP YOUR SCREEN
ENTERTAINMENT
Apalon Apps
iPHONE, iPAD, APPLE WATCH FREE

We all want to make our iOS devices and Apple Watches look different to the rest of the crowd. Pimp Your Screen delivers hundreds of different wallpaper images, prepared at the optimal Retina and standard resolutions, so you can dress up, and coordinate the look of your iOS devices and Apple Watch.

REALIFEX
HEALTH AND FITNESS
Realifex Pty Ltd
iPHONE, APPLE WATCH $1.25/MONTH

Realifex for iPhone and Apple Watch is a self-help app with an interactive and searchable diary designed for self-reflection, stress relief and personal improvement. Realifex allows you to take notes from anywhere. Track each thought, experience and feeling you have by date, location and impact on your life, and assign them hashtags to easily track and analyse them.

TICKTOC
TRAVEL
John Sajadi
iPHONE FREE
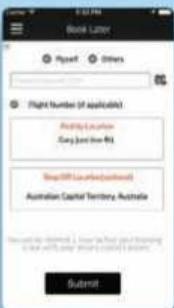
Ridesharing apps and services are all the rage. But TiCKTOC takes a different approach by providing an independent app for booking taxis and hire cars. The passenger provides the pick-up and drop-off location, along with other details to make the booking and the fare is calculated automatically, based on the distance. Payments can be flexibly done via credit card or PayPal.

MAGIC PIANO
MUSIC
Smule
iPHONE AND iPAD FREE

A number of new apps are appearing that can use Apple's new 3D Touch feature on the newest iPhone. *Magic Piano* works on both new and old iPhones, as well the iPad, to let you play this rhythm piano game with many recent, popular songs. There are in-app purchases to add more tracks to play along to.

THREAD BY THE CARLY RYAN FOUNDATION
SOCIAL NETWORKING
KOJO
iPHONE FREE

Thread is a personal safety app that allows users to communicate with friends, family and carers. Users send a check-in with the touch of a button, chat about their concerns and, in the event of an emergency, send a message to their contacts while dialling emergency services. During times of distress, pressing the emergency button calls emergency services and lets your family and friends know that you're in danger. You create check-in deadlines with friends and family. If you miss your check-in, your selected contacts will receive a notification or you can send a check-in from the Home page to let your contacts know you're OK. You can attach an image to a conversation, add trusted contacts and talk about the subject in a secure channel. Thread was launched by Sonya Ryan, the mother of schoolgirl Carly Ryan who was murdered by an internet predator in 2007.

APPLE MUSIC: SHOULD YOU PAY TO STAY?

BY CAITLIN MCGARRY
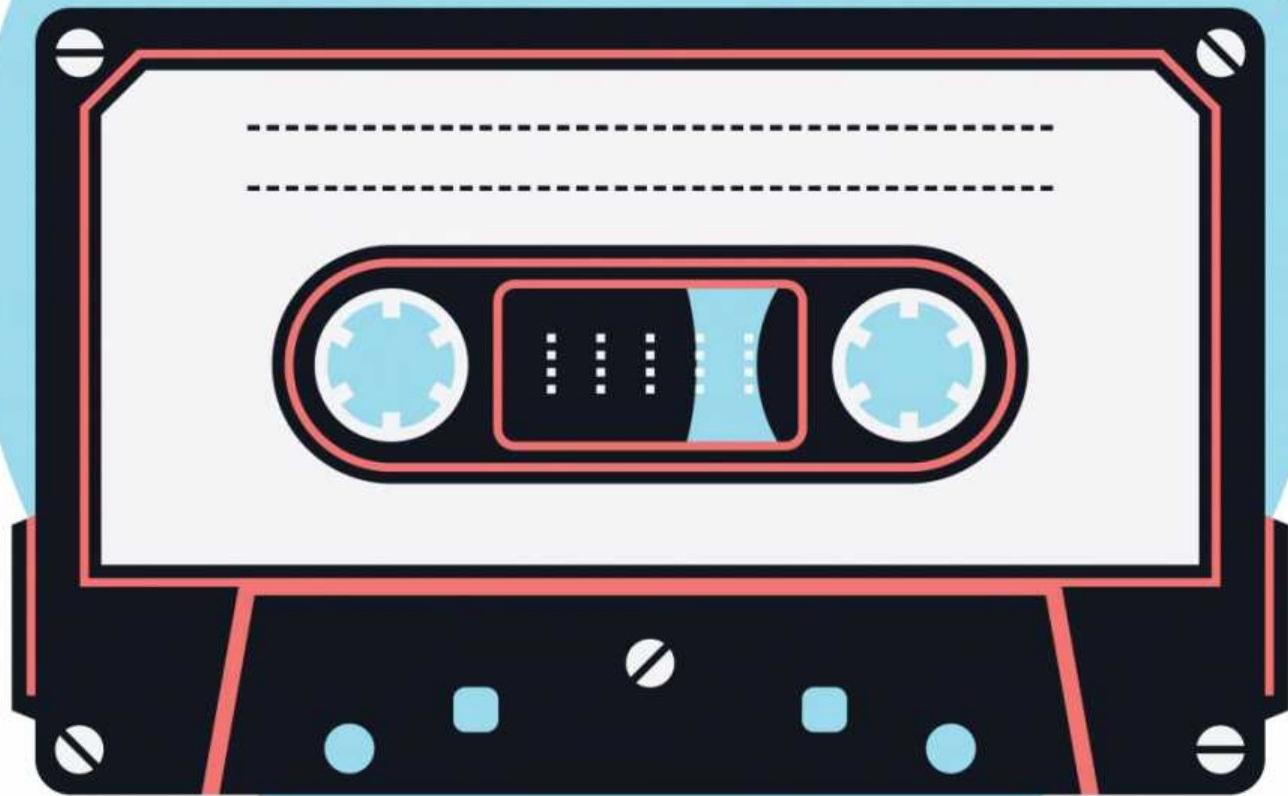
Apple Music's free three-month trial, which began when the service launched on 30 June, is winding down for those who signed up early on. Now it's time to decide whether Apple deserves your monthly payment, or if you should return to the streaming service you abandoned for the last three months with your head hung low in shame.

For some, the decision was made shortly after the trial began, when iCloud Music Library ran roughshod over carefully curated iTunes catalogues. For others, the marriage of purchased tracks with streaming ones is the ultimate music solution. There were some early bugs that have been mostly worked out and, almost six months in, it's time to decide whether to pay up or split.

So, let's break down the pros and cons of subscribing to Apple Music versus another streaming service.

HOW APPLE MUSIC STACKS UP TO ITS RIVALS

There are several music-streaming apps on the market with a variety of features at different price points. You don't get a whole lot for no money – and you'll certainly get an ad-supported service in exchange for free listening – but some services have free tiers if your monthly budget is tight. Or if you want to go big, $23.99 per month will get you a high-fidelity audio subscription (and Prince albums) on Tidal.

APPLE MUSIC'S ADVANTAGES

Siri integration: No other music-streaming app can compete with Apple on its home turf when it comes to service integration, at least not until Apple opens Siri up to third-party applications (and there's no evidence that will happen anytime soon). And using a personal assistant to do the heavy lifting (or endless tapping) for you in Apple Music makes the app's sometimes confusing user

interface, like options buried in menus behind tabs, easier to bypass. Just tell Siri what you want to do and she can help. A complete list of how Siri can make navigating Apple Music a breeze can be found on the following page.

Human-curated playlists: Apple Music's precise playlists struck a chord with listeners because they're created by real people. That means instead of algorithms detecting songs that mention the word 'summer' for a beachy playlist, you get curated tunes that evoke the spirit of summer. There's a playlist for every mood and activity, though Apple could make finding them a little easier.

Discovery: I don't know about anyone else, but I've discovered more new music with Apple Music in the last three months than ever before due to two features: the For You tab and the live radio station Beats 1. For You recommends albums and playlists to me based on what I've listened to and

SERVICE NAME	FREE TIER?	COST FOR PREMIUM SUBSCRIPTON	WHAT YOU GET FOR FREE	OFFLINE LISTENING?	FAMILY PLAN?	PLATFORMS	UNIQUE FEATURES
APPLE MUSIC	No	$11.99/month	Beats 1, ad-supported radio, and Connect social features	Yes	Yes, $17.99/month for up to six people	iOS, Mac and PC, with Android coming soon	Siri integration, Beats 1 radio station, combines iTunes and streaming libraries
PANDORA	Yes	US$4.99/month	Create up to 100 personalised radio stations	No	No	All	Pandora One-Day Pass: 24 hours of ad-free listening for 99 cents
SPOTIFY	Yes	$11.99/month	Shuffle play song – that's it	Yes	Yes, 50 percent off each additional subscription	iOS, Android, Windows Phone, BlackBerry, Mac, PC, web and PlayStation	Running, Discover Weekly, Uber integration, original video content
RDIO	Yes	$5.99/month for ad-free radio and 25 songs on-demand, 11.99/month for unlimited on-demand streaming	Ad-supported radio	Yes	Yes, 50 percent off each additional subscription	iOS, Android, Windows Phone, Amazon Fire, Mac, web, Sonos, Roku, Chromecast, other speaker system and smart TVs	Shared playlists with friends, social recommendations
RHAPSODY	No	US$4.99/month for ad-free radio, US$9.99/month for unlimited on-demand streaming	Nothing	Yes	Yes, starting at $14.99/month for up to five accounts	iOS, Android, Windows Phone, Ford Sync, web player and Windows software	Personalised new music notifications, Twitter song-sharing support
SLACKER RADIO	Yes	US$3.99/month for ad-free radio, US$9.99 for unlimited on-demand streaming	Stream radio or create your own stations, skip up to six songs/hour	Yes	No	You name it, Slacker supports it	Big emphasis on radio, including news and sports
GOOGLE PLAY MUSIC ALL ACCESS	Yes	$11.99/month	Radio, storage for up to 50,000 iTunes songs	Yes	No	iOS, Android and web	Stores up to 50,000 iTunes songs, contextual music recommendations
AMAZON PRIME MUSIC	No	Available only to Amazon Prime members for US$99/year	Nothing	Yes	No	Amazon Echo and Fire devices, iOS, Android and web	All the perks of Amazon Prime membership
MICROSOFT GROOVE MUSIC PASS	No	$11.99/month or $119.90/year	Nothing	Yes	No	iOS, Android, Windows Phone, Xbox, PC, web player and Sonos	Sonos support, OneDrive integration
TIDAL	No	$11.99/month for standard subscription, $23.99/month for lossless high-fidelity sound	Nothing	Yes	Yes, up to four additional members for up to $30/month for standard, up to $60/month for Hi-Fi	iOS, Android, Mac, PC, web and network players like Sonos	Lossless high-fidelity audio, Prince exclusives

liked in the past, and it's often scary how on point those recommendations have been.

I had no expectations for Beats 1, though Apple bet large on the station with three big hires from the radio world and, even if it's not always my cup of tea, I usually hear songs I would've never found on my own and end up loving them. I first heard one of my favourite songs this summer, Jack Garratt's 'Weathered' on Zane Lowe's show in the station's early days. Beats 1 is something no other service offers, and it's a huge selling point (though you can also listen for free if you give up your subscription).

THE CONS

User interface needs work: Apple Music's options can be a little confusing sometimes, though the app has definitely improved in iOS 9. Little bugs like needing to add a song to My Music before being able to add it to a playlist have largely gone away, in my experience, and now you can actually tap on an artist's name when looking at an album or a song and navigate to the artist's page. These are small tweaks, but meaningful ones that should've been in place from day one.

Apple isn't good at cloud services: This is a refrain I've heard often since Apple Music launched, and the kerfuffle over iCloud Music Library and iTunes Match DRM (go. macworld.com/matchdrm) wreaking havoc on some users' libraries proved that Apple has some work to do. We won't even get into the history of .Mac and MobileMe, but suffice it to say that the company has a long, tumultuous relationship with the cloud. And when iCloud services go down, as they sometimes do, there goes your ability to stream music.

Lacks a free tier: If you don't have $11.99 a month, you can't use the bulk of Apple Music's features, not even if you agree to listen to ads. Apple is bypassing the freemium model that worked well for Spotify and Rdio, likely because record labels aren't fans of letting people listen to music for free even if ads are part of the deal. For some listeners, that's a deal-breaker. You can still listen to Beats 1 and

select ad-supported radio stations, and see content that artists share via Connect, but it's not the on-demand with ads you've come to expect from other services, though that appears to be a dying model.

PRO FOR SOME, CON FOR OTHERS

Apple Music sprang forth from iTunes, which means three things for you:

- The app is built in at the OS-level, so it has benefits no other streaming service can offer (Siri integration, for example).
- It unites your purchased music with streaming tunes in one spot.
- If iTunes annoys the hell out of you, Apple Music will not make it better.
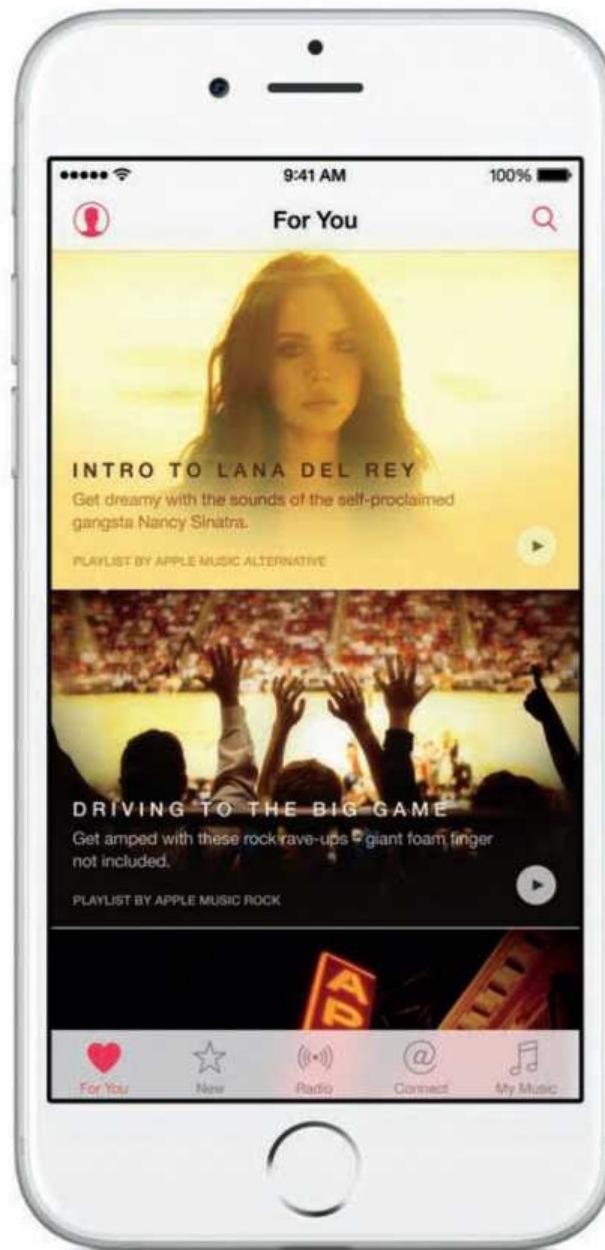
Some users prefer to keep their MP3s and their streaming libraries separate. Others like to live on the edge. And let's not forget an entire generation of music lovers are growing up streaming, not buying, the tunes they love, and for whom mingling two libraries doesn't matter.

Revert to Yosemite

KAREN HASLAM

Was installing the El Capitan beta or final version on your Mac a big mistake?
Have you had a change of heart and want to go back to Yosemite?
Here's how to revert from El Capitan.

WHAT YOU CAN'T AND CAN DO

Before you start there are a couple of things that you can't do. First off, it's not possible to boot your Mac into Recovery mode and revert to Yosemite, because this method can only be used for reinstalling the system that's currently on the Mac, which in this case is El Capitan. Second, you can't run the Yosemite installer within El Capitan, because the Mac always wants to have the latest version of OS X.

What you can do is erase the beta of El Capitan, reinstall Yosemite and then restore your original pre-El Capitan data from the Time Machine backup you made before you installed El Capitan.

Before you begin, make a backup of any new files you've recently added in El Capitan and store them on a hard drive (not the one you are about to use to create the installer though).

Don't make a Time Machine backup either – the only Time Machine backup should be your backup of Yosemite before you updated to El Capitan.

CREATE A YOSEMITE INSTALL DRIVE

Before you remove El Capitan from your Mac, create a Yosemite installation drive. To do so, download the Yosemite installer from the App Store. It may already be in your Purchases section; if it's not there search the App Store. Click on the Download button. After the installer downloads it will auto-launch. You'll need to quit the installer at this point, as you won't be able to install it on top of El Capitan.

At this stage, you need to create a bootable installer on a separate hard drive. You'll need at least 8GB of storage available on an external drive, that is formatted with a GUID Partition Table, on which to put the installer – it's not just a case of copying it over though, you should make a bootable OS X Yosemite install drive. Using a bootable installer drive is necessary because you need to erase the drive on your Mac (including all traces of El Capitan) before installing Yosemite. This way you can do a clean install of the OS and restore any data you have in your backup.

There are a few ways in which you can create that installer. You can use the installer's built-in createinstallmedia tool, use Disk Utility or perform the Disk Utility procedure using Terminal.

The createinstallmedia method is the simplest, and doesn't require you to be competent in Terminal – even the Disk Utility method requires a couple of Terminal commands. However, you will need to open up Terminal to use it.

To use createinstallmedia, you'll first need to connect your Mac to the properly formatted 8GB hard drive. Rename the drive Untitled. (Make sure there is no data on the drive as it is going to be erased.) Now ensure that the Yosemite installer (Install OS X Yosemite.app) is in the correct location in the main Applications folder. Next, launch Terminal and paste in this command:

sudo /Applications/Install\ OS\ X\ Yosemite.app/Contents/ Resources/ createinstallmedia --volume / Volumes/Untitled --applicationpath / Applications/Install\ OS\ X\ Yosemite. app --nointeraction

Enter your admin password when required. You will see the progress in the Terminal window; it could take half an hour. Eventually you will see the words: Copy Complete. Done.

You now have your bootable Yosemite install drive ready to recover your Mac from the grip of El Capitan.

REMOVE THE EL CAPITAN BETA

Now you have your Bootable Installer, and have backed up any new files, you can safely erase the El Capitan volume. You'll have to erase it before you can reinstall Yosemite.

To boot from that Bootable Installer and wipe El Capitan from your Mac, you'll need to shut down your Mac and connect the drive to your Mac.

Hold down the Alt key at startup and when you see the drive icon labelled Install OS X Yosemite, click on the arrow below it to start the install. Next, select Disk Utility when the OS X Utilities window appears.

When the Disk Utility app launches, choose your Mac's hard drive and click on the Erase tab. Name your hard drive and select one of the OS X Extended formats. Click Erase and wipe your hard drive.

INSTALL YOSEMITE FROM A BOOTABLE INSTALLER

Once your Mac has been wiped, you can install the Yosemite from your Bootable Installer. To do so, you'll first need to quit Disk Utility. Next, select Install OS X, click Continue, and follow the installation process. Assuming you made that backup before you installed El Capitan, you can now connect to your Time Machine drive and run Migration Assistant to restore all your files from the backup. Finally, any extra data you have created since installing El Capitan, and have backed up (not using Time Machine) can be restored. ▨

Mystery of the unmovable mail and how to sync iOS email folders

JEFF BATTERSBY

If you're using email on your iOS devices, it's likely you've encountered the following scenario: you're going through your inbox and you try to delete an email when the following message appears, 'Unable to Move Message – the message could not be moved to the mailbox Trash'.

Moving to your Mac, you discover you can delete the message without a hitch and that the message you delete from your Mac also disappears from your iOS device. But none of your iOS devices will let you delete the file.

You also note that any draft messages you create on an iOS device can only be found on the device they were created on. Not on any other iOS devices and not on your Macs.

Finally, you can't locate any of the messages you've sent from your iOS devices when you look for them on your Mac.Why?

You're using iOS Mail's default settings, which use local storage on your iOS device instead of your mail server for storing drafts, sent, deleted and archived mail. But, never fear, we can fix this in a flash.

WHERE'S THE MAIL STORED?

When you use IMAP mail on your Mac (and, trust me, you should be using IMAP), the default location for storing drafts, deleted messages, sent mail and archives is on your mail server. You can see where your Mac stores these files by clicking the Mailboxes link in Mail's toolbar.

While it's not obvious from looking at these folders on your Mac, everything here is a mirror image of the folders on your mail server and they're synchronised to any other Macs you have that use the same mail account. Delete a message on one device, and it's deleted on all your other devices. Create a draft on your Mac, and that draft will show up on all your other devices too.

Here's the important point: whatever you do on your Mac will be reflected on your iOS devices. Here's how to fix mail on your iOS device so that it works like mail on your Mac.

- Open the Settings app on your iOS device.
- Tap the setting for Mail, Contacts, Calendars.

- Tap the account you want to make changes to. (It's likely that you have more than one email account on your iOS device. If you do, you'll need to follow these instructions for each of your IMAP accounts.)
- Tap the email address for the account.
- When the Account settings window appears, scroll to the bottom of the window and tap the Advanced button.
- Take note of the four mailboxes listed under the section titled Mailbox Behaviors: Drafts Mailbox, Sent Mailbox, Deleted Mailbox, Archive Mailbox.
- Tap the Drafts Mailbox and you should see two sections: On My iPad and On The Server. (If you've been seeing the 'Unable to move' message, there should be a checkmark next to Drafts in the section labelled On My iPad.)
- Tap the folder where you want drafts saved on your server.
- Tap the Advanced button at the top of this window.
- When you're done, each of the Mailbox Behavior buttons should have the mailbox you selected listed next to it.

You will need to repeat this process for each of the Sent, Deleted and Archived mailboxes on all of your iOS devices. You will also need to run through this process for all of your email accounts. But, once you do, all of your devices will share the same mailboxes for all your mail.

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How to make a bootable OS X 10.11 El Capitan installer drive

DAN FRAKES

When OS X shipped on a DVD you always had the convenience of a bootable installer – an OS X installer that could be used to boot your Mac if its own drive was having problems. But to install or reinstall a recent version of OS X, you must either download a non-bootable installer from the Mac App Store or (via OS X's invisible, bootable recovery partition) download 6GB of installer data from Apple's servers during the installation process. In other words, you no longer have the same safety net or convenience.

This is why I recommend creating your own bootable El Capitan (OS X 10.11) installer drive on an external hard drive or USB thumb drive. If you need to install El Capitan on multiple Macs, using a bootable installer drive is faster and more convenient than downloading or copying the entire installer to each computer. If you want to erase the drive on a Mac before installing El Capitan, or start over at any time, you can use a dedicated installer drive to boot that Mac, erase its drive, and then install the OS and subsequently restore whatever data you need from your backups. And if your Mac is experiencing problems, a bootable installer drive makes a handy emergency disk.

(OS X Recovery lets you repair your drive and reinstall OS X but, to perform the latter task, you must wait each time you use it for the entire 6GB of installer data to download. At best,

that's a hassle; at worst, it's hours of waiting before you can get started.) As with previous versions of OS X, it's not difficult to create a bootable installer drive, but it's not obvious, either. I show you how, below.

KEEP THE INSTALLER SAFE
Like all recent versions of OS X, El Capitan is distributed through the Mac App Store. You download an installer app (called Install OS X El Capitan. app) to your Applications folder. In this respect, the OS X installer is just like any other app you buy from the Mac App Store. Unlike any other app, however, if you run the OS X installer from that default location, the app deletes itself after it's done installing OS X.

If you plan to use the OS X installer on other Macs or – in this case – to create a bootable installer drive, be sure to copy the installer to another drive, or at least move it out of the Applications folder, before you use it to install the OS on your Mac. If you don't, you'll have to re-download the installer from the Mac App Store before you can use these instructions.

WHAT YOU NEED
To create a bootable El Capitan installer drive, you need the El Capitan installer from the Mac App Store and a Mac-formatted drive that's big enough to hold the installer and all its data. This can be a hard drive, a solid-state drive (SSD), a thumb drive or a USB stick – an 8GB thumb drive is perfect. Your

Install OS X El Capitan Public Beta

drive must be formatted as a Mac OS Extended (Journaled) volume with a GUID Partition Table.

Your OS X user account must also have administrator privileges.

APPLE'S GIFT: CREATEINSTALLMEDIA

I've previously described several ways to create a bootable installer drive for older versions of OS X, depending on which version of OS X you were running, your comfort level with Terminal and other factors. That approach made sense in the past, but a number of the reasons for it no longer apply, so this year I'm limiting the instructions to a single method: using OS X's own createinstallmedia tool.

Starting with Mavericks, the OS X installer hosts a hidden Unix program called createinstallmedia specifically for creating a bootable installer drive. Using it requires the use of Terminal, but createinstallmedia works well, it's official and performing the procedure requires little more than copying and pasting.

The only real drawback to createinstallmedia is that it doesn't work under OS X 10.6 Snow Leopard – it requires OS X 10.7 Lion or later. Though it's true that some Macs still running Snow Leopard can upgrade to El Capitan, I think it's safe to assume that most people installing OS X 10.11 will have access to a Mac running 10.7 or later.

MAKING THE INSTALLER DRIVE

1. Connect to your Mac a properly formatted 8GB (or larger) drive, and rename the drive Untitled. (The Terminal commands I provide here assume that the drive is named Untitled. If the drive isn't named Untitled, the procedure won't work.)
2. Make sure the El Capitan installer (or at least a copy of it), called Install OS X El Capitan.app, is in its default location in your main Applications folder (/Applications).
3. Type the following command in Terminal on one line (see the image on previous page), then proceed to Step 3; otherwise, skip to Step 2b: sudo /Applications/Install\OS\ X\ El\ Capitan.app/Contents/Resources/createinstallmedia --volume / Volumes/Untitled --applicationpath/ Applications/Install\ OS\X\ El\ Capitan.app--nointeraction
4. Launch Terminal (in /Applications/ Utilities).
5. Warning: This step will erase the destination drive or partition, so make sure that it doesn't contain any valuable data. Paste the copied command into Terminal and press Return.
6. Type your admin-level account password when prompted, and then press Return.
7. You may see the message "To continue we need to erase the disk at /Volumes/Untitled. If you wish to continue type (Y) then press return:" If so, type the letter Y and then press Return. If you don't see this message, you're already set.

The Terminal window displays createinstallmedia's progress as a textual representation of a progress bar: Erasing Disk: 0%... 10 percent... 20 percent... and so on. You also see a list of the program's tasks as they occur: Copying installer files to disk... Copy complete. Making disk bootable... Copying boot files... Copy complete.

The procedure can be as quick as a couple of minutes or as long as 20 to 30 minutes, depending on how fast your Mac can copy data to the drive. First, connect the drive to your Mac. Then, restart your Mac (or, if it's currently shut down, start it up) while holding down the Option key. When OS X's Startup Manager appears, select the installer drive and then click the arrow below it to proceed with startup.

Once you see Copy Complete. Done., as shown in the earlier screenshot, the process has finished.

Createinstallmedia will have renamed your drive from Untitled to Install OS X El Capitan. You can rename the drive (in the Finder) if you like – renaming it won't prevent it from working properly.

BOOTING FROM THE INSTALLER DRIVE

You can boot any El Capitan-compatible Mac by choosing the installer drive in the Startup Disk pane of System Preferences, and then clicking restart. However, sometimes OS X bootable installer drives don't appear in the Startup Disk window.

Once booted from your installer drive, you can perform any of the tasks available from the OS X installer's special recovery and restore features. In fact, you'll see the same OS X Utilities screen you get when you boot into OS X Recovery – but unlike with recovery mode, your bootable installer includes the entire installer.
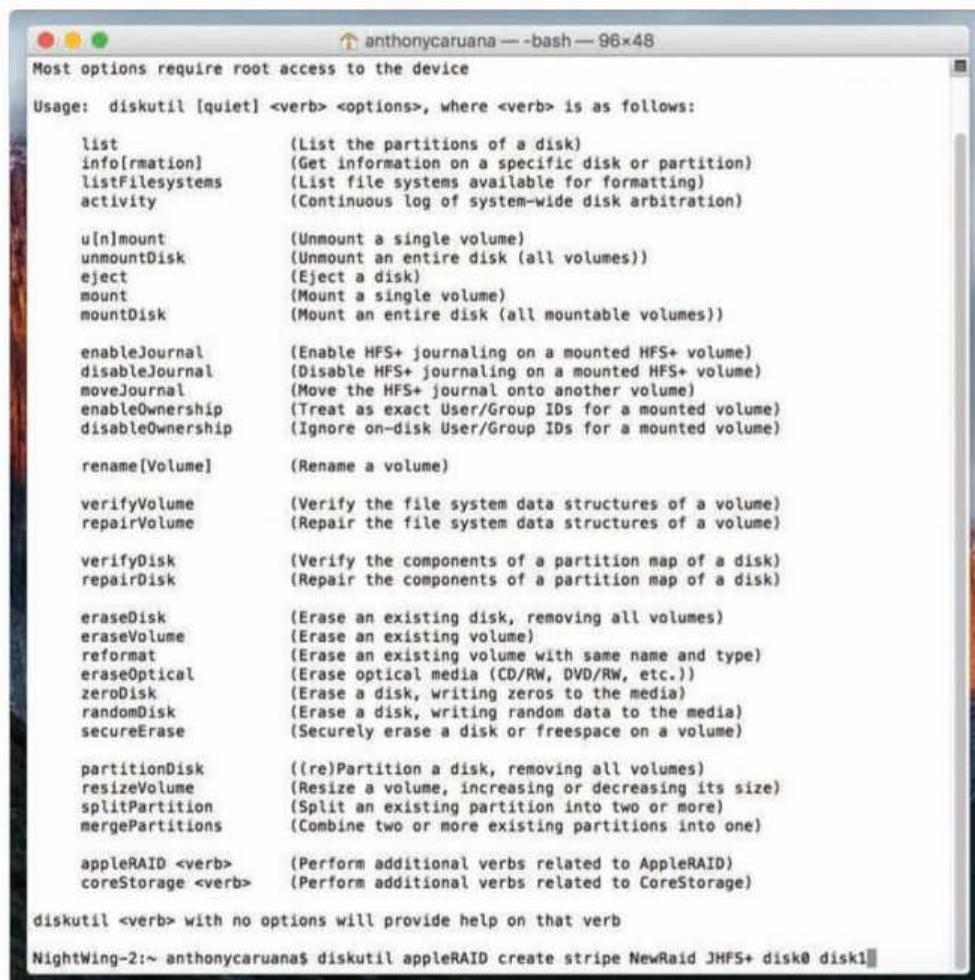
```
● ● ●                        ⬆ anthonycaruana — -bash — 96×48
Most options require root access to the device

Usage:  diskutil [quiet] <verb> <options>, where <verb> is as follows:

        list                  (List the partitions of a disk)
        info[rmation]         (Get information on a specific disk or partition)
        listFilesystems       (List file systems available for formatting)
        activity              (Continuous log of system-wide disk arbitration)

        u[n]mount             (Unmount a single volume)
        unmountDisk           (Unmount an entire disk (all volumes))
        eject                 (Eject a disk)
        mount                 (Mount a single volume)
        mountDisk             (Mount an entire disk (all mountable volumes))

        enableJournal         (Enable HFS+ journaling on a mounted HFS+ volume)
        disableJournal        (Disable HFS+ journaling on a mounted HFS+ volume)
        moveJournal           (Move the HFS+ journal onto another volume)
        enableOwnership       (Treat as exact User/Group IDs for a mounted volume)
        disableOwnership      (Ignore on-disk User/Group IDs for a mounted volume)

        rename[Volume]        (Rename a volume)

        verifyVolume          (Verify the file system data structures of a volume)
        repairVolume          (Repair the file system data structures of a volume)

        verifyDisk            (Verify the components of a partition map of a disk)
        repairDisk            (Repair the components of a partition map of a disk)

        eraseDisk             (Erase an existing disk, removing all volumes)
        eraseVolume           (Erase an existing volume)
        reformat              (Erase an existing volume with same name and type)
        eraseOptical          (Erase optical media (CD/RW, DVD/RW, etc.))
        zeroDisk              (Erase a disk, writing zeros to the media)
        randomDisk            (Erase a disk, writing random data to the media)
        secureErase           (Securely erase a disk or freespace on a volume)

        partitionDisk         ((re)Partition a disk, removing all volumes)
        resizeVolume          (Resize a volume, increasing or decreasing its size)
        splitPartition        (Split an existing partition into two or more)
        mergePartitions       (Combine two or more existing partitions into one)

        appleRAID <verb>      (Perform additional verbs related to AppleRAID)
        coreStorage <verb>    (Perform additional verbs related to CoreStorage)

diskutil <verb> with no options will provide help on that verb

NightWing-2:~ anthonycaruana$ diskutil appleRAID create stripe NewRaid JHFS+ disk0 disk1
```

Creating a RAID array with El Capitan

Apple has seemingly removed the ability to create a RAID array from Disk Utility with El Capitan. It is, however, still there, but you'll need to use the Terminal to create a RAID.

The magic happens with the diskutil command.

To create a RAID0 array using two hard drives connected to your Mac you need to use the following command:

diskutil appleRAID create stripe ArrayName JHFS+ disk0 disk1

In place of ArrayName, enter what you want to call the new RAID volume. For example, if you were planning to use the array for iTunes you might call it Media.

disk0 and disk1 represent the two hard drives you're planning to use in the array.

In order to get the correct disk identifiers, use the diskutil list command to get a list of the drives connected to your Mac.

For example, the two external drives you plan to use for the RAID might be designated disk2 and disk3. In that case, your Terminal command for creating the array might look like:

diskutil appleRAID create stripe Media JHFS+ disk2 disk3.

How to create a custom calendar in Photos for Mac

LESA SNIDER

There's nothing like printing your own photography, though adorning your walls with your own art can be intimidating. A safe way to print – and thus enjoy – your digital memories is to create a calendar in Photos for OS X. At 33 by 25cm, Apple's calendars are big and printed on thick, high-quality paper so they look better than the ones you get anywhere else. They're stunning and they make great gifts.

The calendars you create in Photos can be customised in myriad ways. You can choose from a variety of themes, customise the look of each page, add captions and national holidays, pull events from your Calendar app, and plop pictures onto individual date squares (great for birthdays!). You're not stuck with a 12-month calendar either – you can include up to 24 months if you wish, and you don't have to start with January. Apple's calendars are also affordable: a 12-month calendar costs $26.99 (add $1.99 for each additional month). This column walks you through the process of creating own. (Creating a calendar in iPhoto is a similar process.)

STEP 1: PICK THE PICTURES

Unless you want one picture per page, start your calendar with 25 to 35 pictures in an album made specifically for this project. In the album, drag to reorder the pictures, how you want them to appear in the calendar (or Photos flows them into the calendar chronologically according to capture date). But, if you prefer, you can also start the project by selecting a Collection or Moment, individual thumbnails or even multiple albums (by Shift or Command-clicking).

STEP 2: CHOOSE THE LENGTH, START DATE, AND THEME

Click the + button in Photos' toolbar, or the one that appears when you point your cursor at the upper right of thumbnails in Collections or Moments view, and choose Calendar (you can also choose *File > Create Calendar)*. In the resulting screen, pick the number of months you want and the start date. Click Continue and you see a list of themes. Photos hops online to see if Apple has added any new ones (those thumbnails have a tiny cloud icon at lower right). Double-click the theme you like and, if necessary, Photos downloads it, plops your pictures into it and deposits you in All Pages view, which gives you a satisfying sense of what your calendar will look like (the Big Date theme was used here).

If you want to experiment with other themes, now's the time. It's best to settle on a theme before you start customising each page, or else all your design work flies out the window. To do it, click Settings in Photos' toolbar. In the resulting pane, you can change themes, calendar length, start date, and a slew of other options, as this screenshot illustrates.

STEP 3: CUSTOMISE PAGES

While you're in All Pages view, you can rearrange the pages as well as the
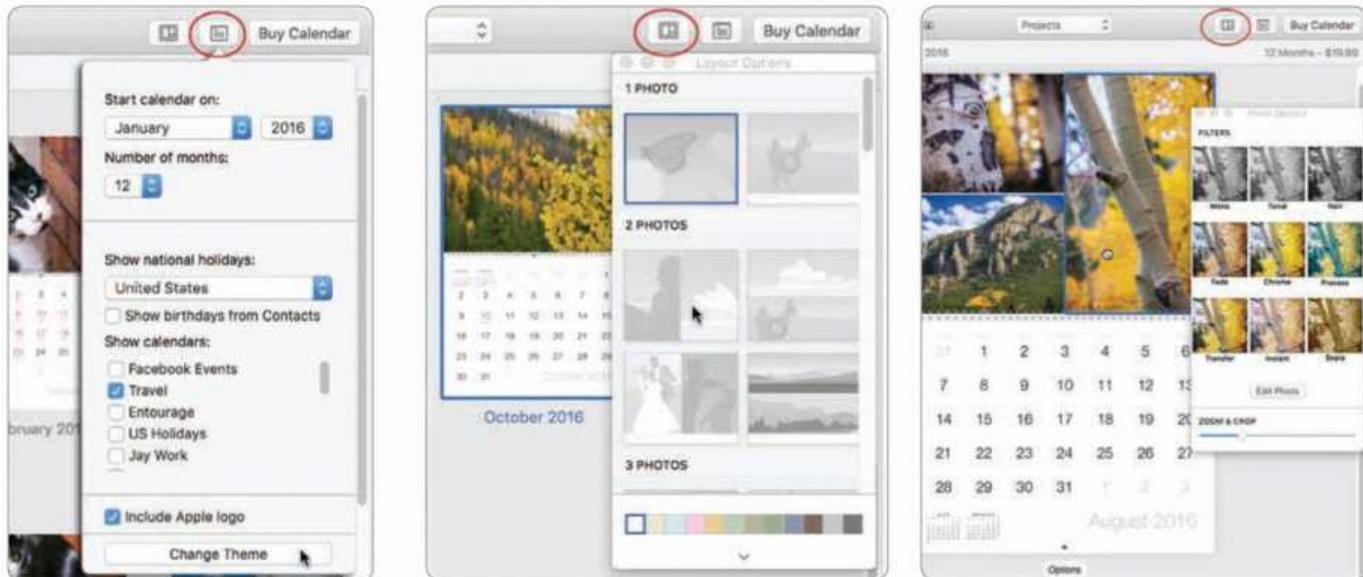
images they contain. To move a page, point your cursor at it and then click and hold down your mouse button atop the grey rectangular icon that appears beneath it. When the page pops off the workspace, drag the selected page atop the page in the desired location. When the page in the target location dims, release your mouse button and Photos moves the selected page to its new home, as shown here.

To move pictures around, click an image and hold your mouse button down until the picture pops out of the frame, and then drag it atop another frame. If Photos wasn't able to place all the pictures you began the project with, they appear in the Photos drawer at the bottom of the window where you can drag them onto pages yourself. To remove a picture from a page, drag it to the Photos drawer. If you prefer to place the pictures yourself, click Clear Placed Photos and all the pictures in your project are moved to the Photos drawer. To add more pictures to your calendar project, click the Add Photos button at lower right and then click to select the images you want to add.

To change the number of pictures per page, and their arrangements, or to change the background colour of a page, activate the page and then open the Layout Options panel by clicking the button circled above. Scroll to find the layout you want and click its thumbnail to apply it. If the layout you pick supports a background colour, use the swatches at the bottom of the panel to change it.

STEP 4: CUSTOMISE PICTURE POSITIONING AND CAPTIONS

To fiddle with how individual pictures appear in their frames, and to customise text, double-click a page to enter Single Page view. That's where you can change a picture's zoom level and positioning, apply a filter or open it in Edit mode. Click the picture you want to change and, if the Options panel isn't open, double-click the image, click the Options button beneath the page, or click the Options button in Photos' toolbar.

To edit your calendar's title and captions, click the placeholder text and then type away. The Text Options panel automatically opens, letting you change the font, size, style, colour and alignment. To add custom text to a date square, click the square and a text box appears.

For even more creativity, add a picture to a date square. Simply drag a picture from the Photos drawer onto a date square to mark a birthday, anniversary, graduation or other personal event.

To edit a different month, click the left or right-pointing arrows on either side of the calendar page, or use the arrow keys on your keyboard. To return to All Pages view, click the back button at the upper left of Photos' toolbar.

STEP 5: FINAL INSPECTION

To proof your calendar, choose *File > Print*. Then either print it or export it as a PDF using the PDF menu at the bottom left of the Print dialogue. And do remember to spell check your calendar by choosing *Edit > Spelling and Grammar*. Typos on a calendar are worse than typos in a book because you have to stare at them for a whole month!

STEP 6: BUY THE CALENDAR

When you click the Buy Calendar at the upper right of the Photos window, the program examines your calendar for problems such as placeholder text, placeholder pictures, and text that's too long to fit in its box. If Photos encounters any of these issues, it alerts you and lets you fix it – just keep clicking Buy Calendar until you run out of error messages.

As you can see, it's easy to create a gorgeous calendar in Photos. But be warned: when you give custom calendars to loved ones, there's no going back; they'll expect them yearly. May the creative force be with you all!

STM READER TIP

!

Cookie monsters?
Lots of websites use cookies to restrict your access in order to force you to pay for a subscription. Or you may need to remove something from your browser history. There's an easy way to do that.

In Safari, open Preferences and go to the Security tab. If you wait a few moments, a 'Details' button will appear just under the 'Remove All Website Data' button. This lets you delete cookie and other files relating to specific websites rather than your entire browsing history. Just search for the site you need to remove and click the remove button.

Elizabeth Imbrie

■ **EACH MONTH, STM** gives a prize to the *Macworld Australia* reader who submits the best and most useful tip (undocumented tips preferred). This month's prize is a comfortable and portable STM sequel small laptop shoulder bag worth $99.95.

Your daily gear travels in sleek protective style. The sequel is the perfect, just the essentials bag for your 13in laptop, tablet, a couple of files, cords and chargers.

Features:
- main flap secured with light but durable brushed aluminium buckle with easy one-handed click-and-go design
- laptop compartment lined with soft nylex and high-density foam to protect most 13in screens (will hold most laptops from 12-14in)
- front zippered stealth pocket is lined and accessible without opening main flap – perfect for sunnies or a phone
- dedicated tablet slip pocket with soft nylex lining
- organisational front pocket for biz cards, pens, keys, etc
- slip rear pocket for some reading material with quick drop phone pocket
- luggage pass through secures the bag to the handle of your wheeled travel piece
- padded, non-slip shoulder pad for a comfortable carry
- quick cam-adjust shoulder strap for both cross body and shoulder carries, and
- water resistant 320D brushed poly main fabric with 640D reinforced bottom fabric
  www.stmbags.com.au

? BENTO BOXED
■ **As FileMaker no longer supports Bento, we have found it tends to crash our computer. Do you know of a database to replace Bento? We mainly use it for listing books, DVDs and stamps. We know FileMaker Pro is good and we used to use it in business, but we are looking for a less powerful program at a more modest price. Any suggestions?**
Gerald and Valerie Lloyd

I feel your pain. I was a big fan of Bento and was a trifle annoyed by FileMaker's decision to mothball it. I had an entire workflow built around a Bento collection I created. Like you, I found FileMaker, although extremely capable, overkill for my specific needs.

The good news is there are specific apps for some of those tasks you've listed. For example, Delicious Library can store information about just about anything. It also supports barcode and ISBN scanning using your Mac's iSight camera. With a little bit of elbow grease, you can probably export the data you have in Bento and import it to Delicious Library without too much difficulty.

I've taken to storing some of the information I had in Bento within Evernote, but that's a different, less structured program.

Delicious Library costs US$25, but there is a free trial version, so you can check it out before committing.

DISPLAY RESOLUTION

I have an early 2014 11in MacBook Air and have bought a Philips BDM4065UC 40in 4K screen for the office (thanks for your review on the Philips). When connected, the best resolution I can select for the Philips is 2048 x 1080, although the Philips specs can achieve 3840 x 2160. MacBook Air specs say max resolution on an external screen is 2048 x 1152. Is my hardware capable of outputting 3840 x 2160 and software limited or simply not capable?

I have also tried my son's MacBook Pro, which is specified as capable of driving two 4K external screens, but cannot get past 2048 x 1080 on that either. I am using a mini Display Port to HDMI adapter and high speed HDMI cable supplied with the Philips monitor.

The big screen gives me what I want in my office, even at 2048 x 1080, but the 4K resolution would be better if I can get it. Can you offer any advice please?
Ken McCarthy

In short, there are two factors that determine the maximum resolution you can achieve – the maximum capability of the screen and the maximum output capability of the computer.

You've hit the threshold of the MacBook Air's capability.

With the MacBook Pro, 4K output is mainly limited to fairly recent models – see https://support.apple.com/en-au/HT202856

In other words, to get your new display to show 4K output, you'll need a more recent Mac.

FIND OUT WHICH iOS APP IS REQUESTING YOUR APPLE ID PASSWORD

I was travelling overseas a couple of years ago for a friend's wedding. While there, I spent an afternoon with a long-lost acquaintance. Somehow, for whatever reason, he shared an iOS app with me, installing it on my phone and using his Apple ID. Up until I bought a new phone and restored it from backup, everything was fine. Now, however, the phone is asking me for his Apple ID credentials. I don't even remember which app it was he installed for me. Is there any way to easily find which app is causing the problem without uninstalling every app on the phone and re-installing them until I find what I am looking for?
David Nicklin

You are so not going to like the answer to this. I encountered this a few years ago, when I installed some apps on my wife's phone before Apple added Family Sharing – which we still don't use, but at least it's an option.

After she updated, she had the same problem: she needed my password, which wasn't cached, to perform updates on the apps I'd installed and there was no way to know which. Fortunately, we remembered the apps and removed them.

I scoured the internet, as I imagine you may have done as well, and there's no magic bullet. As long as you upgrade or restore from a backup, the app will persist in reinstalling. Now, you can get a list of all purchased apps from the iTunes Store via OS X. *Launch iTunes > Select the iTunes Store > Click the Purchased link at upper right > Click the Apps link at far right, and then the All button and the iPhone button.*

Scrolling through the list when organised by Most Recent, you may be able to go back through time to find the app in question, as it may stand out in context. (Selecting Name doesn't seem to actually sort apps alphabetically.)

With the iPhone plugged into a Mac, you can select it in iTunes, and then view the apps installed on it. It's tedious, but if you can find the mismatch, you can uninstall it from the iPhone, and finally be free.

? HOW TO HIDE PURCHASED BOOKS FROM iBOOKS

I have Apple's manuals for iPhones, iPads and iPods for iOS 6, 7 and 8. At this point I only want the iOS 8 manuals, but while I can delete the book files from my devices, they are still listed on my bookshelf as downloadable from the cloud. What makes this particularly maddening is the titles for many of the aforementioned books are too long to view in iBooks, so the only way to find the iOS 8 version for iPhone is to download and open each iPhone manual until I find the right one.
Tony Leneis

The bad news: once you obtain a book from Apple, it's forever in your iCloud account. It will follow you to the end of time, like a cloudy spectre of words.

The good news: while it remains in your account, you don't have to see it! And you've got two ways to work around it.

While you can't delete purchases, you can hide them, although you have to use iBooks for OS X to do so.

1. Launch iBooks.

2. Click the iBooks Store button, and log in if prompted.

3. Click the Purchased link on the main store page (at middle right).

4. Hover over a purchased book and click the X in its upper left.

5. You're prompted to confirm hiding the book. Click OK.

It can be unhidden via Account Information as noted.

You can also organise books to keep them available but out of the way. In iBooks for OS X, use the List view, which lets you resize columns, and see the full name of lengthily titled books to identify them more easily. Make sure syncing is enabled between iBooks in OS X and iOS. You should be prompted to turn sync on when logged into an iCloud account when launching iBooks in OS X.

If you don't have iBooks installed in OS X, use the landscape view on an iPhone or iPad in iBooks, as it will use the full width of the screen to show the title.

Now create collections corresponding to your needs. In your case, you may want iOS 8 as one collection and Outdated manuals as another. Now you can move titles into those collections.

In OS X in the List view, right-click a title and then select Add To Collection. You can also select multiple books and choose New Collection From Selection if you'd prefer to go that route. If you want to organise visually, click the Collections button then select the All collection link at left. Now you can drag books into collection names below All and they're added to those categories.

In iOS, it's a little more confined, so follow these steps:

1. In any view, click Select.

2. Tap the circle next to any book you want to put into a collection.

3. Tap Move at upper left.

4. In the Collections list, choose the category you want or swipe to the bottom to choose New Collection.

You can also suppress the display of books stored in the cloud and not present locally. In OS X, chose View | Hide iCloud Books. In iOS, tap the Collections selection at the top of iBooks, then tap the Hide iCloud Books' switch to on (green).

? STOP PHOTOS FROM LAUNCHING WHEN YOU PLUG YOUR iPHONE INTO YOUR MAC

I converted one iPhotos library to Photos in OS X. Now, every time I plug in my iPhone, Photos launches, requiring me to quit and then launch iPhoto. I'd like to revert to iPhoto being the default choice.
Mike Kahn

Apple likes to hide its browser, mail and iOS-attached launch preferences in funny places. You set your default

browser in Safari, meaning you have to launch Safari to stop launching Safari in the future (*Safari > Preferences > General > Set Default Browser); same with Mail and email (Mail > Preferences > General > Default Email Reader*).

Where do you find the photo-app launching preference? Not in Photos or iPhoto, as you'd expect! Instead, launch Applications | Image Capture, a very useful utility that can work with iOS devices, inserted SD cards, attached cameras and networked scanners.

1. Attach your iOS device.

2. Select it in the left navigation bar in Image Capture.

3. At the lower left, you'll see your device's name, the message 'Connecting This description Opens' and a pop-up menu. (If that doesn't appear, make sure the tiny panel button at the extreme lower left has an arrow pointing up, not down.)

4. Choose your desired app or No Application.

For you, it should read Photos, and can be changed to iPhoto.

? RIPPING CDS WITHOUT iTUNES

Is there any way that I can rip a CD to a destination folder other than the Music folder in my iTunes media library? Is there any way that I can keep iTunes from automatically adding the ripped tracks to my iTunes library? I don't allow iTunes to organise my music library, I don't store my ripped or downloaded music in my iTunes media library, and I don't automatically add all of my music to my iTunes library. It's cumbersome to rip a CD and then have to manually move the files to their proper home and then delete them from iTunes.
***Anon***

I can offer two possible solutions. The first is to rip your CDs with a different

app. I wrote an article about ripping CDs without iTunes a few years ago; I strongly recommend the free XLD on OS X.

However, if you use an app other than iTunes, you don't have access to the Gracenote database for metadata, or to downloaded album artwork from the iTunes Store. So what you could do is rip the CDs in iTunes, then select one of the tracks and press Command-Shift-R, or right-click and choose Show In Finder, to display it in the Finder. Press Command-Up Arrow to move up to the folder containing the album.

You can copy this to a different location, and then go back to iTunes and delete the files. This is cumbersome, as you say, but if you like the advantages of ripping in iTunes, it may be the best solution.

? PLAYLIST VIEW

In iTunes 12, some of my playlists look different to what I'm used to. Instead of a series of columns with headers, I only see song, artist and album names, the genre and the duration of tracks. How can I get the old playlist format back? I want to be able to see all of my playlists as they were previously, and not in the newer format.
Anon
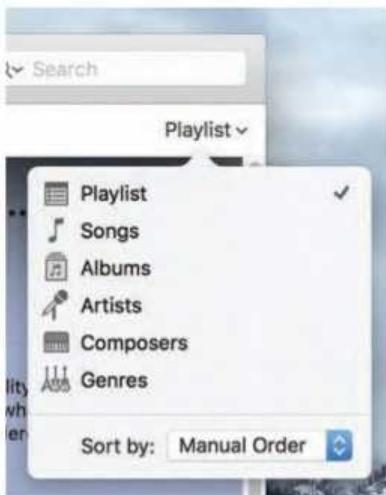
As you say, this is a new view added in iTunes 12. In your case, you want to choose Songs view, rather than Playlist view. Unfortunately, iTunes doesn't let you set this as a default for new playlists; when you create a new playlist now, it defaults to Playlist view. You'll have to change the views manually for every playlist you create.

TV Tuners and PVRs

By Adam Turner.

DishTV AerialBox T2200

The first recorder to tap into the FreeviewPlus onscreen guide, DishTV's AerialBox T2200 strives to ensure you never miss the end of a show – but it's not foolproof.

The FreeviewPlus guide has been on smart TVs for 12 months – called up with the green button – but the AerialBox T2200 is the first box that uses it to schedule recordings, rather than relying on the hotchpotch program guide embedded in the broadcast signal.

The AerialBox T2200 features a 1TB hard drive and can record two channels while you watch a third from one of the networks you're recording. You can perform the usual tricks like pausing and rewinding live broadcasts, as well as watching the start of a movie while you're still recording the end.

Thanks to the FreeviewPlus guide you've got easy access to Catch Up TV from all five networks – you can press the red button to see a network's Catch Up app or simply scroll backwards through the onscreen guide (a trick known as a Reverse EPG or electronic program guide). You can also schedule one-off and ongoing series recordings from the FreeviewPlus onscreen guide. Unfortunately, there's no way to schedule recordings remotely.

Sadly, streaming video options are limited to FreeviewPlus. There's no support for movie rentals, subscription video or even free services like YouTube. You can play files from a USB stick, but you can't stream video across your home network via DLNA (Digital Living Network Alliance). Nor can you stream recordings from the AerialBox to watch in bed on your smartphone or tablet.

AERIALBOX
www.aerialbox.com.au

PROS FreeviewPlus Catch Up TV; accurate-ish program times

CONS No other streaming video features

$369

Humax 4Tune

With four tuners and an abundance of streaming options, the Humax 4Tune caters to busy households.

The Humax 4Tune can simultaneously record four channels from different networks, while you watch a fifth channel from one of those networks (there's also a two-tuner model). You can pause, rewind and watch the start of movies while you're still recording them – with the benefit of an ad-skip button.

Sitting in bed with your iPad, you can stream your recordings from the 4Tune via Wi-Fi. You can even stream live channels to two mobile devices simultaneously, while someone watches television in the lounge room. With such flexibility, Humax describes the 4Tune as a 'home entertainment server'.

You can schedule one-off and regular series recordings via the mobile app or via Humax's website. Humax recorders once supported the IceTV program guide, but now Humax offers its own guide without a monthly subscription. It's more reliable than the guide data from the broadcast signal, but the 4Tune can't monitor CRID data to detect when a show is running late.

If you do miss a show, you've got access to all five free-to-air Catch Up services, via FreeviewPlus, plus Catch Up is integrated into Humax's onscreen TV guide. There's also Quickflix for subscription video, movie rentals and purchased premium content, but not Netflix.

The 4Tune can stream video to or from practically any device. You can also use the Humax app to send video from an iGadget to the 4Tune, a bit like AirPlay, so you can watch it on your television.

HUMAX
www.humaxdigital.com/au/

PROS Lots of tuners and streaming options

CONS No Netflix

$649

Fetch TV

Offering basic pay TV along with Netflix and movie rentals, Fetch TV is a great all-rounder for those who like to keep their entertainment options open.

Fetch TV downloads a custom program guide from the internet, which is less likely to leave you in the lurch than the data in the broadcast signal. Along with watching the free-to-air channels, you can sign up for basic streaming pay TV packages – channels include TVH!TS, Disney, ESPN and Syfy, as well as a few foreign language options, but not the premium sport and HBO dramas that you'll find on Foxtel.

With a 1TB hard drive, Fetch TV can record two channels while watching a third from any network. You can pause, rewind or record the streaming pay TV channels just the same as the free-to-air channels, as well as watch the start of a show while recording the end. There's also a movie rental service – with an ever-changing library of 30 free movies – as well as the ability to purchase premium content such as episodes of *Game of Thrones* (but not the day after they screen on Foxtel).

Fetch TV supports DLNA, so you can watch video streamed from your computer or network drive. You've also got access to Netflix and Catch Up from ABC, SBS, Seven and Ten. You'll need to consult your ISP to see if some of Fetch TV's internet features are 'unmetered', meaning the data doesn't count towards your monthly download limit.

The Fetch TV mobile app lets you schedule one-off and series recordings. It uses the CRID data in the broadcast signal to detect when shows run late – although this isn't foolproof. The app also lets you stream your recordings over Wi-Fi (a feature disabled if you purchase Fetch TV via Optus). You can also watch the live pay TV channels via Wi-Fi or mobile broadband when you're away from home.

Foxtel iQ3

Foxtel's iQ3 aims to blend free-to-air, pay TV and streaming video into a seamless viewing experience, but it's still a bit rough around the edges.

The iQ3 features a 1TB hard drive and lets you record three channels – including one free-to-air channel – while watching a fourth. You can pause and rewind live broadcasts, as well as watch the start of a movie while still recording the end. You need to pay an extra $10 per month to watch pay TV in high-definition. The satellite version of the iQ3 features an aerial socket on the back for picking up the free-to-air channels that aren't retransmitted over the Foxtel service.

The iQ3's menus focus on 'content discovery', with recommendations to help you find something decent to watch rather than leaving you to channel-flick in desperation. Along with watching free-to-air and pay TV, you've got access to pay-per-view new release movies along with Foxtel's streaming Catch Up service (but not free-to-air Catch Up). You can scroll back 24 hours through the onscreen guide to stream shows you've missed. There's also a Start Over streaming feature for when you tune in halfway through a live movie or TV show.

Your Foxtel subscription lets you stream live pay TV channels via the Foxtel Go mobile app, which you can also use to schedule one-off and regular series recordings. With all of Foxtel's streaming features you're restricted to content from the channels in your Foxtel package. You can't stream your recordings to a mobile device, nor can the iQ3 use DLNA to stream from your computer or network drive.

Unfortunately, the iQ3 has been plagued by bugs, not all of which have been squashed. It comes with a Bluetooth remote control, which can be troublesome, but thankfully the box retains an infrared receiver, so you can switch to an old-style remote. 🖱

🐭🐭🐭🐭🐭 **FETCHTV**
www.fetchtv.com.au

PROS Custom EPG; basic pay TV

CONS No live free-to-air streaming to iGadgets

$399 (PERHAPS CHEAPER FROM YOUR ISP)

🐭🐭🐭🐭🐭 **FOXTEL**
www.foxtel.com.au

PROS Pay TV and Foxtel Catch Up

CONS No free-to-air Catch Up

$125 PLUS INSTALLATION, AT LEAST $25 PER MONTH

Dragon for Mac

There was a time when speech recognition programs really struggled to keep up with what we wanted them to do. However, things have improved considerably over recent years. So much so that speech recognition has now been integrated into operating systems. For example, OS X has been able to take dictation and read out commands for several versions.

Dragon for Mac by Nuance is the fifth version of a product that's been around for a number of years. Unlike previous versions, there's no need to train the software anymore, as it can achieve high levels of accuracy straight out of the box. In fact, I'm dictating this review, having gone through the default setup process without any special training or configuration.

The initial setup process should have been straightforward, but I did encounter a few hassles. I wanted to use the internal microphone on my Mac's Cinema Display, but the setup program didn't allow it. I ended up connecting an external headset and was up and running in a few minutes. It's worth noting that Dragon has withdrawn support for some microphones, as it found performance wasn't good enough and this was affecting the overall impression of the product.

Once I got through that, I was able to use Dragon to issue commands such as 'Open Mail' so that I could read my email. The recognition was not perfect. For example, when I tried to launch Microsoft Word, Dragon insisted on launching the Twitter app.

The accuracy of the speech recognition was quite impressive. There were some occasions where the program recognised a word incorrectly, but there are voice commands for going back and making corrections. Spending some time to learn those commands goes a long way to increasing the usefulness of Dragon.

It's also possible to increase the accuracy of the speech recognition by going through a more complete training process. Even without this, however, I found recognition accuracy to be well in excess of 90 percent. So, even though Dragon did a great job of transcribing what I said, there is still a need to proofread your work.

I installed Dragon on the late 2014 Mac Mini. It's definitely not the fastest Mac on the market, but it coped without too many problems. The biggest challenge for me was getting used to the idea of speaking rather than typing when writing text. In particular, the need to tell the program where to insert punctuation changed the way I write. I suggest the steepest part of the learning curve is changing the way I work in order to say what I'm going to write rather than type it.

Some older versions of Dragon required that you add text into a specific application, but that's no longer the case. I used Dragon to dictate text messages using the Messages app, 'type' into Microsoft Word and to create emails. Using Dragon, it would be possible to reduce my keyboard use quite significantly, perhaps by as much as 75 percent.

As well as being able to receive text dictation, Dragon can transcribe audio files. This does require some training. The training process requires you to record 90 seconds of speech so that Dragon can train itself. This process took some time as, once Dragon processed the audio, I needed to make corrections on transcription errors and then allow Dragon to update its recognition engine.

Although this worked reasonably well, it's worth noting that the transcription tool only works with one voice on the audio. It isn't able to separate the text from two different voices on the audio recording.

– ANTHONY CARUANA

NUANCE
www.nuance.com

PROS Great accuracy out of the box

CONS Some setup issues

$285
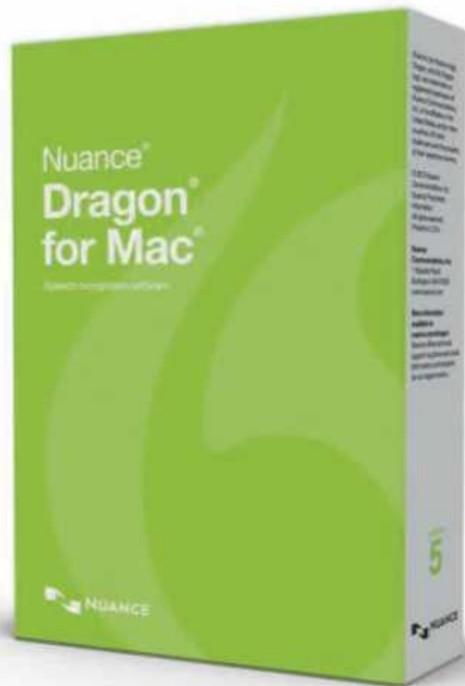
Sonos Play:5
wireless speaker

Blessed with extra tweeters and more grunt, the second-generation Sonos Play:5 wireless speaker raises the bar for multi-room audio.

Sonos makes it simple to enjoy your favourite music around your home. You can group the speakers into zones – playing the same song in sync throughout the house during a party. Afterwards you can mix things up and play different songs in different rooms when family members go their separate ways.

The speakers create their own 5GHz wireless mesh network, letting you control everything from your computer, smartphone or tablet. You can stream music from a wide range of subscription services – with Apple Music support coming by the end of the year. Unlike connecting your iGadget to a single AirPlay speaker, you can stream online music to multiple Sonos speakers simultaneously. You can't send music directly to a Sonos speaker via Bluetooth or AirPlay, but the speakers show up as DLNA media renderers on your home network.

Along with tapping into the likes of Spotify, you can also stream your home music library directly from your handheld gadgets, computers and Network Attached Storage drives. Some Sonos speakers, including the Play:5, even feature an auxiliary line-in so you can plug in any audio device and send the output to speakers around your home.

The original Play:5 was launched in 2010, followed by the smaller Play:3 and Play:1 along with a subwoofer and soundbar. This year's revamped Play:5 comes with a $100 price hike, but in return it offers twice the power to rock the largest of rooms.

Even with extra grunt the sound remains beautifully sweet and balanced – the low-end is rich but not overpowering, while the high-end isn't too harsh or flat. Crank up the volume and there's no distortion or murk. You'll hear every instrument in an ensemble, whether you're listening to Miles Davis or Metallica.

The new Play:5 doesn't just pack more punch; audiophiles will appreciate that it also offers a wider sound stage thanks to two new side-firing tweeters. The sound doesn't appear to come from a single point. Close your eyes and you can hear the musicians spread out before you. As with other Sonos speakers, you can connect two Play:5 speakers to create a stereo pair, which further enhances the sound.

These new speakers recalibrate their sound on the fly when you stand them up on their side, offering a better defined sweet spot when you're listening on the couch. They feature new touch-sensitive play/pause and volume buttons, which also reorientate, as does the ability to swipe your finger across the controls to jump between tracks.

The beauty of the Sonos speakers is that they're easy to install in any room, all you need is a power point. The new Play:5 is humidity-proof like the little Play:1. To be honest, a hefty Play:5 would be overkill for most bathrooms, but the fact it's not bothered by humidity may make it a good choice to sit alongside an indoor pool.

With the release of the revamped Play:5, Sonos has also unveiled a new Trueplay feature, which calibrates any Play speaker using an iGadget's built-in microphone. The results are impressive, helping your existing Sonos speakers sound their best in an 'echoey' hallway or other acoustically challenging environment.

Bottom line. The revamped Play:5 is a worthy addition to the Sonos line-up and music lovers with an ear for quality will appreciate the improvement. You wouldn't dump your first-generation Play:5 speakers on the nature strip in favour of their successors, but if your budget will stretch you may retire your older Sonos speakers to other rooms and give the new Play:5 speakers pride of place in the living area.

– ADAM TURNER

SONOS
www.sonos.com

PROS Amazing sound; room calibration tool

CONS Pricey

$749

Apple TV 4

After years of being a hobby project, Apple signalled how serious it's becoming about the lounge room with its new Apple TV. Officially called Apple TV 4, this new lounge room entertainment hub, while not perfect, shows the potential to change the way we access media and games.

I connected a new 64GB Apple TV to a 4K TV. That internal storage is critical as the new Apple TV, unlike all its predecessors, now has access to its own App Store. So that space will be used for installing apps, as well as holding the operating system. Other than a power cable and HDMI connection – that's it. All up, from removing the shrink-wrap from the box to having the tvOS on screen it took but a few minutes – and that included taking up a new career in contortionism to reach the HDMI port on the back of the TV.

Many newer TVs support HDMI CEC. The Apple TV's new remote control supports this, so it can be used to turn your TV on and control the volume without needing to juggle multiple remotes.

Unlike previous versions of the Apple TV, some of the setup process, such as entering a Wi-Fi network password or iTunes details, is done via an iOS device. This is because the new Apple TV uses Bluetooth, which is what's used for the newly designed remote control.

One of the advantages of using Bluetooth is that you can connect lots of other peripherals to the Apple TV, such as different controllers and headphones – handy for those that like to watch movies or play games when the rest of the family are asleep.

The biggest hassle with the new Apple TV is that, out of the box, running the all-new tvOS, it has very limited functionality. With the older Apple TV, 'apps' such as YouTube and the various catch-up TV and streaming video services were available when you first turned the device on. With the new Apple TV, you'll need to visit the App Store and install the apps you want.

The trouble is, as I'm writing this review, the number of available apps is pretty limited. Netflix, Stan and Tenplay are there, but other popular apps and services, such as Presto and ABC iView, aren't there yet. I expect that to change soon but, until then, we're stuck with AirPlay for those apps.

The new approach with apps for the Apple TV is a significant step forward, but Apple needs to find a better way to get up and running. In the case of the apps I've used, I've had to enter my user credentials for each new app I installed. Apple has a mechanism for simplifying this process through the Keychain. However, Apple has made a decision to not make this work with tvOS so far.

Disappointingly, Apple has limited the Apple TV by only equipping it with the A8 processor and not the new A9 processor that sits at the heart of the iPhone 6s. My suspicion is that this is part of the reason the Apple TV 4 only supports 1080p at 60 frames per second. We are well and truly moving into the 4K video age with content providers such as Netflix creating 4K content.

It's impossible to discuss the new Apple TV without looking at the new ecosystem Apple is building around the device.

The App Store is, frankly, a bit of a mess. The Featured Apps section will change over time and as more local apps are released but, for now, it seems quite US-centric to me. If you're into UFC or professional wrestling, you'll be happy, but the

pickings were very slim at the time of writing this review.

Jumping over to the 'Top Charts' section made it obvious that the App Store for tvOS lacks the same depth and breadth as its Mac and iOS siblings. Applications aren't categorised, so looking for the most popular apps of a specific type is difficult. In fact, searching for apps is almost the only way to find an app and that only works if you know the app's name.

Entering text into the search box or for entering usernames and passwords is painful. The older Apple TV has the keyboard, arranged alphabetically down the left side of the screen with search results appearing on the left. Jumping between letters was relatively easy, as you could skip through the alphabet both vertically and horizontally. With the new Apple TV, the keyboard is arranged in a single row, so you need to scroll left and right a lot more.

In short, it takes more time and more effort to type with the new Apple TV than the previous model.

This brings me to the new remote control. The combination of touch-sensitive areas and buttons does take some getting used to. I found swiping across the keyboard or to select the icon for an app I wanted to use quite imprecise. I often overshot or finished short of the icon I was targeting, requiring me to fiddle around a little. As you'd expect, the fixed buttons worked perfectly.

The remote is also the tool for accessing Siri. But if Siri on the iPhone is a young adult, the version running on the new Apple TV is still a pre-schooler. You can use Siri to search for content that's accessible to the Apple TV, but only a limited number of content sources are available.

Until Siri can search for content across every app it's only of limited value.

One of the big selling points of the new Apple TV's remote control and apps is the ability to transform what was once just a media streamer into a gaming console. In theory, this is a great step forward, but some games will work a lot better if you stump up more money for a proper gaming controller.

If you've got a bunch of video content that isn't from iTunes, there's good news. Apple is allowing other media playback apps into the tvOS App Store. The NAS I use has the ability to run Plex – a free media server application. Using the free Plex app I was able to easily access that content from my NAS without the need to do any transcoding. If you're like me and have a media library with content from several sources being able to directly access media from the NAS is very handy.

Bottom line. In my view the new Apple TV is best summarised by one word: potential. tvOS is a blank canvas that will, in time, be painted upon by app developers. Apple will refine the App Store experience over time. The ability to play games, access fitness apps and use non-iTunes media libraries is a great start. In the coming months, I'm expecting the Apple TV to become a true entertainment hub. ✄

– ANTHONY CARUANA

APPLE TV 4
www.apple.com

PROS Openness of new apps

CONS App management, set up process

$269 FOR 32GB, $349 FOR 64GB

Apple Magic Mouse 2 and Magic Keyboard

I have to admit, when I think of the word 'magic' pictures of mice and keyboards aren't what my mind conjures. However, that's the moniker Apple has chosen to use for its new Magic Keyboard and Magic Mouse 2.

Both these new devices, and the Magic Trackpad 2, have been given a facelift by Apple. Gone is the need to keep a set of batteries handy to keep these Bluetooth input devices tapping and scrolling. Instead, Apple has integrated the battery with charging managed through the same Lightning cable used to sync your iOS devices.

Apple's new pairing process sets a new standard in making Bluetooth pairing easy. I plugged the keyboard in to my Mac using the supplied Lightning cable, turned the keyboard on and in about two seconds a message appeared on my Mac's notification area informing me that the keyboard was paired. I repeated the process with the mouse a few moments later with the same outcome.

The Magic Keyboard is thinner than its predecessor. Unburdened by the need for batteries, Apple has been able to eliminate the cylindrical casing, making the Magic Keyboard's body wedgelike. The net result is that it sits much flatter on the desk than the older model.

Personally, I prefer the keyboard to be on more of an angle, tilted to the front. However, I spend a lot of time using a MacBook and iPad keyboard case so it's not a showstopper for me. It does mean, though, that the Magic Keyboard won't suit everyone.

> The Magic Mouse 2 retains much of the same usability as the previous model and, at first glance, you'd be hard pressed to tell the difference between the original Magic Mouse and the new version.

The key travel may also annoy some although I didn't find it too annoying. I prefer the Magic Keyboard to the new MacBook as there is a more key movement.

Apple says battery life is around a month, but a 10-minute charge will see you through a day if you let the keyboard or mouse run flat. Of course, all that is predicated on how much you use the mouse or keyboard. Fortunately, both are equipped with an on/off button, so you can conserve power if needed.

The Magic Mouse 2 retains much of the same usability as the previous model and, at first glance, you'd be hard pressed to tell the difference between the original Magic Mouse and the new version.

The battery slot has gone and there's a small port for the Lightning cable on the underside. Placing the slot in that position means the mouse can't be used while it's being recharged. Some different materials have been used for the two strips on the underside so that it glides nicely.

The materials were changed from the previous model and the weight of the Magic Mouse has changed. I've read that the key reason was to do with the sound the old material used now that the weight has changed. Such is Apple's attention to detail.

Over the last couple of years, I've used a trackpad as my main pointing device as it supports multi-touch gestures. Although the Magic Mouse 2 supports some touch gestures it lacks that utility, given how I use my computer. It is, however, it's a competent desktop rodent that is comfortable to use.

Your mouse and keyboard are probably the two most used, and under-rated, parts of your computer. The Magic Keyboard and Magic Mouse 2 are solid performers although I'd strongly recommend trying them out before buying to ensure they're comfortable.

– ANTHONY CARUANA

APPLE MAGIC KEYBOARD
www.apple.com

PROS Easy setup

CONS Keyboard angle

$165

APPLE MAGIC MOUSE 2
www.apple.com

PROS Light and easy to use

CONS Can't use while charging

$129